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A Review on Phytochemical and Pharmacological Activity of *OXALIS CORNICULATA LINN*

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Abstract:

Oxalis corniculata Linn is a highly potent traditional medicinal plant that is widespread in tropical and subtropical regions of the world and is commonly known as woody climbing tamarind and belongs to the Oxalidaceae family. HumanDisease, this overview shows different areas of previously isolated plant molecules, such as flavonoids, alkaloids, tannins, steroids, polyphenols, glycosidic compounds, lipids and volatile oils. It contains pharmaceutical substances such as isovitexin, flavonoids and the glycopyrunsideVitexin2ObetaD. It is a rich source of essential fatty acids like palmitic, oleic, linolenic and stearic acids; it has some important pharmacological properties like healing, anti-diarrhea, anti-cancer, anti-implantation and abortion resistant, bacteriostatic, anti-inflammatory. This review article briefly describes the botanical properties, the ethnopharmacological use, the pharmacological properties and the phytochemical composition of this medicinal plant and document the most important. Information on the various aspects of *Oxalis corniculata* and highlights research and development needs.

Index Terms: Oxalis corniculata, Ethno-pharmacological, Oxalidaceae, Phytochemical.

I. INTRODUCTION

A large number of modern medicines have been derived from natural resources.There is so much knowledge, information, and benefits of herbal medicine in our ancient Ayurvedic and medical literature by Unani. Charaka Samhita is one of the ancient Indian medicinal treatises (1000 BC) that reports the use of more than 2000 herbs for medicinal purposes [1]. The study of the chemical components of plants and pharmacological research can form the basis for the growth of mycelium to develop new active substances. In addition, herbs have provided us with some very important lifesavingmedicinesthat are used in the arms of modern medicine [2]. There is a widespread belief that medicinal herbs are safer and less harmful to the human body than synthetic drugs, which is why laboratories around the world are testing plants for biological activity with therapeutic potential. Therapeutic benefits of the Traditional Indian medical system uses medicinal herbs to treat various ailments.The herbal system of traditional medicine plays an important role in health care, as around 80% of the world's population mainly rely onethnopharmaceuticals for basic therapeutic purposes, and a significant part of the population relies on traditional medicine due to the scarcity and high cost of the traditionalone Medicine and its unpleasant side effects [3, 4]. It is believed that medicinal herbs

are less toxic and safe for the human body than synthetic drugs [5, 6]. *Oxaliscorniculata* Linn, widespread in Asia, Europe, America and Africa, belongs to the family Oxalidaceae, grows freely in human habitats, on roadsides, parks and squares, in almost all warmer parts of India, especially in the Himalayas at an altitude of 2500 meters.It is a common herbaceous plant. in damp and dark places. It is a well-known plant in India, and its biological properties are known all over the world. It contains essential phytochemicals that are necessary for normal and good human health. Other alternative uses have also been reported, such as anthelmintic, anti-inflammatory, astringent, antiseptic, diuretic, antipyretic, and gastric properties. The plant is also used to treat fever, cold, cough, diarrhea, shock, urinary tract infections, and sprains.This plant contains important plant compounds such as β-carotene, vitamin C and niacin. Plant extracts are beneficial for stomach problems and jaundice [9, 10].

A. Taxonomical Classification [11]

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Oxalidales
Family: Oxalidaceae
Genus: *Oxalis*
Species: *corniculata*
Botanical Name: *Oxalis corniculata*Linn.

B. Vernacular Names [11]

Sanskrit: Ambashta, Amlapatrika, Amlika, Amlotaja, Cangeri
Hindi: Seh-patti, Tinpatiya, Anboti, Bhilmori, Khatari
English: Indian sorrel
Urdu: Khatt-i-buti
Assamese: Changeritenga, Sarutengesi
Bengali: Amrul-sak, Amrulshak, Amrul, Amrool
Kannada: Huli-huniche, Hulihunice, Teltuppi
Tamil: Palaikiri, Puliyarail
Telugu: Ambotikura, Pulichintha, Pallachintha
Marathi: Ambali, Chicha
Malayalam: Poliyarala, Puliyaral, Puliyarala, Pullampurachi
Marathi: Umbuti, Ambuti, Bhinsarpati, Ambatachukaa
Oriya: Sialthur, Siakthur, Ambo chingari
Arabic: Hememdab, Homadmad

II. DISTRIBUTION

Aratherfragile, low-growing herb, widespread in humidand shady places, on roadsides, in plantations, meadows and in most areas in warmer parts of India, especially in the Himalayas at an altitude of 8000 feet around the world [12]. It was also distributed by ballast around the eastern port city of the United States and became widespread in Texas and Ontario. These weeds are found throughout Florida. This is a commonsight in the south eastern United States from New foundland to North Dakota; and southern Mexico. Corniculata is a common plant that is found in the Old World, as well as in the temperate and tropical regions of North, Central, South America and the West Indies [13].

III. MORPHOLOGY

For this study leafy plants were collected from Bilaspur, Chhattisgarh, India region and authenticated by the Botanist.This is a herbaceous shrub or rooted shrub 0.10.5 m long (Fig. 1). Branched from the base and usually serrated, the upper part iserect or weak, smooth or pubescent [13].

(a) Body: The body is slender, curly and serrated, from 0.4 to 1.5 cm in length. Its length varies from 4.5 to 8.5 cm. Unpleasant smell, bitter taste when fresh [14].

(b) Leaves: Leaves are opposite,three-node, lamellar, cordate, with distinct longitudinal grooves; leaflets 0.5-1 cm long,lateralveins are enlarged, the plateis smooth on the upper surface, slightly bent

upward along the main vein, with a small number ofhairs hanging along the veins on the lower surface and along the lower edge, folded leaves alternately along the body. A long stem grows from the axils of the leaves, from which thereare up to 3 pedicels, each stem hasa flower

(c) Flowers: 711 mm wide, with 5 yellow petals [13].

(d) Fruit: The fruit is a capsule, 11.5 cm long, cylindrical, with a pointedapex and 5 ridges in cross section [13].

(e) Seeds: Seeds are oval, with a rounded apex,generally pointed, flattened in cross section, light brown, with a serrated outer surface.Oxaliscorniculata will belarger [13].

Fig. 1 : *Oxalis corniculata*Linn.plant

IV. ETHNOBOTONIA

In the Nepalese village of Oxalis corniculate Linn. (Jujursaang) is used as a medicinal plant [14]. Mix equal amounts of the plant with Justicia adathoda L.Maesa macrophylla leaf cocoons, ground in water, anddrink about 6 teaspoons 3 times daily for stomach ailments [15]. A decoction of the leaves is used to treat fever and dysentery in parts of Madhya Pradesh [16]. Saturate the whole plant with Seda Akotaleaves, whichare takenbymouth to treat gonorrhea in Cameroon [17]. The juice of the herb was used as an eye drop for conjunctivitis by the Bora tribes of Assam [18]. Residents of Tehsil Chakwal (Pakistan) used the juice to treat skin conditions, and the leaves as a cooling agent for indigestion, fever, severe headache and snakebite. Choppedfennel, drink water 3 times a day to cure dysentery.It is also used for sensitive teeth [19].

V. PHYTOCHEMICALS

Previous studies have isolated several types of phytochemical components of this medicinal plant, such as tannins, flavonoids, polyphenols, steroids, alkaloids, volatile oils, fatty acids, glycosides, etc. essential fatty acids such as palmitic acid, linoleic acid, linolenic acid and lipids. The presence of oleic acid and oleic acid in this plant has been foundin previous studies. The leaves of the plant are the main source of vitexin-20-beta-D-glucopyroside and vitexin amino acids. In a previous study, fiber and calcium were found in methanol and ethanol plant extracts. Thestems and leaves are anexcellent source of citric and tartaric acids, and the stems also contain malic acid.Some parts of the plant are alsorich in vitamin C and carotene. Oxalate-rich leaves and stems taste bitter due to acidic plant compounds [20, 21].

Phytochemical test for *Oxalis corniculata* Linn showing the presence of tannins, palmitic acid and a mixture of 8 oleic, linoleic and linolenic acids and lipids. Methanol and ethanol extracts of this plant showed the presence of carbohydrates, glycosides, phytosterols, phenolic compounds, flavonoids, proteins (12.5%), amino acids and volatile oils; It also shows the presence of calcium, fiber and tannin.Leaves contain tartaric and citric acids, calcium oxalate, flavonoids (acacetin and 7.4 diOMeiapigenin), glycoflavones (4'OMe vitexin, 4'OMeisovitexin and 3', 4'diOMe orientin), flavanols (3', 4 'diOMe quercetin)and phenolic acids such as

fhydroxybenzoic,vanillic, and injectable acids. This herb is known for its citrusy flavor due to the high oxalate content in its leaves and stems. The study showed the presence of three C-glycosylflavones in the leaves, 6C-glucosylluteolin (isoorientin) and 6C-glucosylapigenin (isovitexin) and isovitexin7-methyl ester (certisin)(Fig. 2).

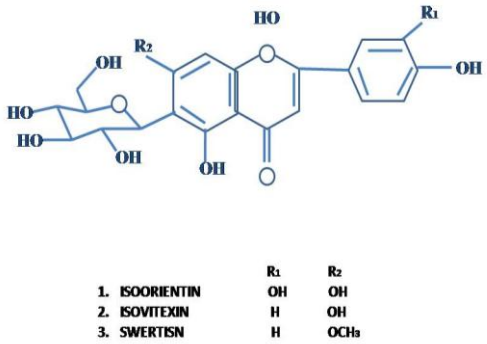

Fig. 2: The structures of flavonoids [i: luteolin 6 -c- glucoside (isoorientin), 2: apigenin 6 -c- glucoside (isovitexin), 3: isovitexin 7- methylether (swertisin)] isolated from the shoots of *o. corniculata*

Ferritin was found in *Oxalis corniculata*cells, which was confirmed by X-ray microscopic analysis with electron microscopy; It occurs in immature plastids and ameloblasts as sub-crystalline aggregates with rounded edges or may be predisposedto surrounding starch granules. Stromal ferritin aggregates are a source of iron for the fetus. The leaves contain about 86% water, 0.8 fat, 8.2 carbohydrates, 150 mg calcium, 78 mg phosphorus, 8 mg iron, 0.6 mg niacin, 78 mg vitamin C, 6050 mcg beta-carotene and 712% oxalate [22]. During photosynthesis, oxalic acid is formed by fixing carbon dioxide in both light and dark, but its photosynthetic rate is much higher in the dark. Several compounds have been characterized by nuclear magnetic resonance, infrared and mass spectrometry, such as (i) Oc1, a mixture of C24 to C28 saturated fatty acids; (ii) Oc2, a mixture of C18 to C28 long chain alcohols; and (iii) Oc3, a separate compound that is a galactoglycerolipid [23]. β-cytosterol (1), betulin (2), 4-hydroxybenzoic acid (3), ethyl gallate (4), 5-hydroxy7,8-dimethoxyflavone (5), 5-hydroxy3 ', 4', 6, 7 ,8-pentamethoxyflavone (6), 7,5'-dimethoxy3, 5, 2'-trihydroxyflavone (7), 5-hydroxy3, 6, 7, 4'-tetramethoxyflavone (8), 4 ',5-hydroxy3, 6, 7 -trimethoxyflavone (9), 5-hydroxy3, 6, 7, 4'-tetramethoxyflavone (10), apigenin 7O (βD-glucoside) 11) and 3.3,5.7-trihydroxy-4'-methoxyflavone7OβD-glucopyranoside (12) were recently isolated from Oxalis corniculata (Fig. 3) [24].

Nutritional value of *Oxalis corniculata* Linn. Leaves seem to be rich in minerals Content such as sodium (1.12 + 0.02%), potassium (2.17 + 0.31%), calcium (2510.08%), nitrogen (3.56 10.70%)) and magnesium (0.25 + 0.03%), these mineralsare important components in the regulation of various metabolic pathways. in the human body [25].

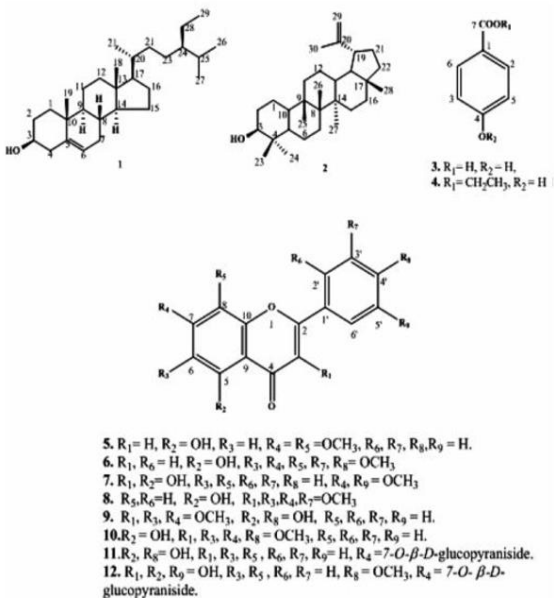

Fig. 3: Structures of Compounds 1-12 isolated from *Oxalis Corniculata*Linn.

VI. PHARMACOLOGICAL PROPERTIES

Oxalis corniculata has demonstrated different pharmacological activity in previous studies. They are as follows:

A. Wound Healing Properties:

Whole vegetable alcohol and petroleum ether extracts were evaluated for their wound healing activity using

excision, incision and wound models.Necrotic Wounds inAnimals Extracts of the whole plant *Oxalis corniculata* at doses of 300 and 500 mg per kg of body weight, respectively, showed significant activity in wound healing byincreasing the rate of healing of wounds, contractures and fractures and a significant reduction in wound healing time [26, 27].

B. Antidiarrheal properties:

The antidiarrheal activity of the decoction and methanol of the plant was evaluated in diarrhea caused by castor oil in rats and during transit through the small intestine. At all dosages, the aqueous extract wasfound to be more effective than the methanol decoction. Oral doses such as 160, 320 and 640 mg / kg body weight have been shownto have antidiarrheal effects. This broth reduces the passage of coal dust through the small intestine and reducesstool moisture in castor oil diarrhea. Both decoctions prolong the onset of diarrhea and suppress bowel movements [27].

C. Anticancer properties:

Based on previous research, it was concluded that ethanol decoction suppressed tumor growth at sites and in solid tumor models. The ethanol decoction was evaluated for its antitumor effect on Ehrlich carcinoma in Swiss albino mice [28, 29].

D. Anti-implantation and miscarriage properties:

In a previous study, petroleum ether extracts and whole plant ethanol were administered orally at doses of 100 and 200 mg / kgfor the first time on the seventh day.pregnancy to determine anti-implantation properties. Pregnant women who received treatment from the eighth to the fourteenth day of pregnancy showed abortive andmaximal effects (78.55%) with a high dose of amild oil decoction. Allgroups treated with All showed anti-reproliferative properties on day 10 of surgery and were optimal (76.42%) in a light oil broth [30].

E. Antidiabetic properties:

Anearlier study showed that a decoction of the plant was tested for its ability to inhibit pancreatic novocaine amylase.Organic extracts did not show significant inhibition, it can beconcluded that the biologically active compounds in the broth showed only the inhibitory effects of amylase. In this study, an extract concentration of 100 µg / ml showed a maximum inhibition of 89.27% [31].

F. The antibacterial properties:

The antibacterial properties of methanol and ethanol extracts of the plant havebeen reported in a previous study. Methanol and ethanol extracts haveshown significant antibacterial properties against Xanthomonas and fourteen strains of human pathogenic bacteria the effect between partitions. In the case of human pathogenic bacteria, the administration of a methane decoction with moderately important antibacterial properties was observed compared to the standard antibiotic streptomycin [32].

G. Anti-inflammatory properties:

A whole-plant methanol decoction was evaluated for anti-inflammatory and antioxidant properties by in vitro methods. Aspirin has been used as a standard drug to study itsanti-inflammatory properties. Anti-inflammatory studies were assessedby analysisof albumin denaturation, analysisof membrane stability and proteinase inhibitory activity at various concentrations; Based on theresults,it was concluded that the broth has the abilityto trap nitric oxide and DPPH radicals with IC50 valuesof 302.93 ± 4.17 µg / ml and 73.07 ± 8.28 µg / ml, respectively. The decoction also showed anti-inflammatory properties in vitro, inhibiting thermal denaturation of the albumin protein as well as stabilizing the red blood cell membrane, and the IC50 values for the study results were 288.04, respectively. ± 2.78 µg / ml and 467.14 ± 9.56 µg / ml. Proteinase activity was also noticeably

inhibited by chromatography (IC50 435.28 ± 5.82 µg / ml) [33].

H. Anti-ulcer Properties:

In one study, the anti-corrosion properties of vegetable broths and ethanol solutions were evaluated at dose levels of 200 and 400 mg/kg using a corrosive organic solvent. Releaseof ethanol in gastric ulcers and associated pyloric ulcers. There was a significant decrease in stomach volume, as well as a decrease with free and complete antacid decoction treatment, and catalase and SOD concentrations were increased and lipid peroxidation decreased in both decoctions [34].

I. Antiepileptic action:

Methanol extract of *Oxalis corniculata* Linn. Leaves at doses of 200 and 400 mg/kg body weight were tested for antiepileptic activity inmodels of maximum electroconvulsiveseizures (MES) and pentylenetetrazole (PTZ) in Wistar albino rats. MES, MEOC showed a significant reduction in hind limb lengtheningtime at a dose of 200 mg/kg and significantly reduced efficacy ata dose of 400 mg/kg. Similar dose-dependent results were obtained in the PTZ model by delaying the onset of clonicseizures. In conclusion, our present results indicate that L.*Oxaliscorniculata* has an antiepileptic effect on MES and PTZ-induced spasms and that its mechanism may be related to increased MES andPTZ. GABA receptor activity and signal transduction [35]. Study A was conducted to investigate the effects of a methanol extract of *Oxalis corniculata* Linn. The levels of the antioxidant enzymes superoxidedismutase, glutathione peroxidase, glutathione reductase, and catalase decreased in the rat brain due to seizures and recovered significantly upon administration of ethanol.*Oxalis corniculata* Linn extract. Similardose-dependent results were also obtained in PTZ, while MEOC significantly reduced lipid peroxidation in both models. The anticonvulsant activity of MEOC may have antioxidant properties and inhibitthe production of free radicals inepilepsy caused by MES and PTZ [36].

J. Hypolipidemic properties:

Hyperlipidemia hasbeen caused in animals on a high-fat diet containing coconut oil and vanaspati ghee in specificproportions at a dose level of 10 ml/kg. The decoction used showed a significant reduction in biochemical factors such as triglycerides and LDL cholesterol and MDA in the blood. Incontrast, SOD, HDL, and CAT were significantly increased in the study [37].

K. Anti-nociceptive action:

Ethanol extract of *Oxalis corniculata.* At doses of 200 and 400 mg/kg of bodyweight, its antitumor activity was assessed in rats with diabetic neuropathy. Diabetic rats showed a significant 49% reduction in tail latency in the hot water immersion test and a 40% reduction in legretraction in the hot plate test at the end of the fifth week [38].

L. Antiamoebic activity:

Oxalis corniculata Linn. Several compounds have been identified with antiaging activity in E. histolytica cultures. They are labeled by NMR, infrared and mass spectrometry as (1) Oc1, a mixture of saturated fatty acids from C24 to C28; (ii) Oc2, a mixture of C18 to C28 long-chain alcohols; and (3) Oc3,a compound called galactoglycerolipid (GGL). Among the various compounds obtained, the strongestantiepidic activity was found in GGL [39].

M. Anxiolytic activity:

The anxiolytic effect of the alcoholic extract of *Oxalis corniculata* Linn. (100 and 300 mg/kg)ledto a significant increase in the number of hybrid seeds (control = 24.33 ± 3.48), but a significant decrease in immobility (control = 47.17 ± 4.29 s) and fecal pellets (control = 13, 50 ± 0.96 pellets) compared to control rats in the open field test; The number of entries (control = 53.00 ± 2.67 s) in the open arms increased significantly, but the number of entries (control =

29.33 ± 1.05 entries) and elapsed time (control) = 166.7 ± 4.30 s) compared to control mice. In addition, ethanol extract of *Oxalis corniculata* (100 and 300 mg / kg) significantly reduced hassles (control = 9.50 ± 0.62hassles) compared to control rats. This was found to be consistent with the anxiolytic effect caused by diazepam [40]. Theaim of the studywas to evaluate the anxiolytic effect of the alcoholic extract of *Oxalis corniculata* Linn. (200 mg/kg and 400 mg/kg PO) in male rats using various models of anxiety. In an additionally improved maze, the extract (200 mg/kg and 400 mg/kg) showed a dose-dependent increase in the duration of use and the number of entries into the open arm compared to the control group and the brood stock increased significantly in the open field model. The treated groups showed penetrance in terms of time spent in the light compartment, the number of crossovers, and latency compared to the control group in the dark light scan test. Head depression decreased in rats treated with an alcoholic extract of *Oxalis corniculata* (200 mg/kg and 400 mg/kg) [41].

N. Hepatoprotective activity:

Hepatoprotective activity of aqueous and alcoholic extracts of*Oxalis corniculata* Linn leaves. (200 and 400 mg / kg) against hepatotoxicity caused by thioacetamide. Oralintake of an aqueous and ethanol extractof *Oxalis corniculata*leaves at a dose of 400 mg / kg significantly reduced SGOT (146.42 ± 2.54 and 136.75 ± 1.37 IU / L, respectively), (81.96 ± 2) 3, 15 and 72.05 ± 2.33) IU / L), GGTP content (16.6 ± 0.49 and 15.02 ± 0.68 IU / L, respectively), ALP (241.86 ± 3.94) and 202.42 ± 5.37 IU / L, respectively) and total bilirubin (0.226 ± 0.00 mg / dL 0.288 ± 0.01 mg / dL, respectively) was less than in the active control, thioacetamide caused harm to mice. The histology of animal liver sections treated with the extract also showed a dose-dependent decrease in necrosis [42].

O. Steroidogenicactivity:

Researchshows that the plant *Oxalis corniculata* Linn. It has steroid activity and this natural chemical can be used safely as it does not interferewith organfunction, as demonstrated by its effect on one of the endocrine organs glands and adrenal glands function normally in the extract of treated female albino rats [43].

P. Cardioprotective effects:

The present study evaluated the protective potential of an aqueous extract (*Oxalis corniculata* Linn. OCE) against isoproterenol-induced myocardial infarction in rats. Myocardial infarction in rats was induced with isoproterenol (200 mg/kg)for 24 hours for 2 days. Mice were injected with OCE as a 30-day oral pre treatment via a nasogastric tube. Isoproterenol causes a significant increase in the activity of markers of heart damage, such as creatine phosphokinase (CPK) and lactate dehydrogenase (LDH), and increases the level of lipids in the blood. Pre treatment with OCE significantly reduced serum levels of CPK, LDH, total cholesterol, and LDL cholesterol. OCE also decreased the activity of the adipogenic enzyme glucose phosphate dehydrogenase in rats treated with ISO. Isoproterenol-induced oxidative stress was significantly reduced with the administration of OCE, as evidenced by an increase in the activity of antioxidant enzymes (catalase and superoxide dismutase) and reduced concentrations of lipid peroxidation products (TBARS and conjugated denaturation). Low levels ofthe proteins vitamin C, sulfhydryl, and glutathione (GSH) were also increased in mice pretreated with OCE. Cardiac histopathology of OCE-treated ISOrats showed normal myocardium with little evidence of inflammatory infiltrates. Our in vitro results also confirm that OCE exhibits significant antioxidant and radical scavenging activity against DPPH radicals, superoxide, and nitric oxide [44].

Q. Nephrotoxicity:

CCl4 induces oxidative stress in various tissues by altering the defense system of antioxidant enzymes. This study examined the chemical structure and

protective role of *Oxalis corniculata* Linn. Methanol extract (OCME) on CC-induced nephrotoxicity in rats. The presence of flavonoids in OCME, alkaloids, terpenoids, saponins, cardiac glycosides, flavotanins, and sterols were identified, and tannins were absent. The calculated total phenol content was 7.76 ± 0.36 (mg gallic acid equivalent / gextract), while the reported total flavonoid content was 6.92 ± 0.52 (mg standard equivalent / g extract). Intra peritoneal injection of CCl4 (1 ml / kgbw, 20% in olive oil) once a day for seven days is nephrotoxic due to increased specific concentrations of urine,erythrocytes,leukocytes, creatinine, protein, urobilinogen and nitrite. Serum creatinine, urea and urea were significantly increased, while creatinine and protein clearance levels decreased with CCl4 treatment in kidney samples. Antioxidant enzyme activity, Lipid concentration and protein content increase with tissue damage. Processing with OCME causes significant restoring of changed parameters. It can be concluded that OCME plays a protective role against CCl4-induced oxidative stress in mice due to the effects of antioxidant phenols [45].

VII. CONCLUSION

From the above description of the current review observe, it can be said that *Oxalis corniculata* Linn. It has been used for invented purposes since ancient times which was mentioned earlier in numerous literatures as well. The study highlights the morphological uses, phytochemistry, ethnopharmacology, pharmacological properties and therapeutic application of the plant. The plant can be used as aaccompanying food source for its easy availability, low cost and does not require special cultivation care. Therefore, given its full potential, it can be concluded that there is ample room for future research on *Oxalis corniculata.*

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Influence on Conversion of Cash into Cashless Transaction System in Chhattisgarh during COVID 19 Pandemic

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Abstract:

This paper consist the impact of paperless transaction system in Chhattisgarh during COVID 19 pandemic that how paperless system encourage and uplift our under privileged economy during pandemic scenario. This study contains the concepts and consequences, its problems and prospects of paperless system during pandemic. Some objectives like its feasibility, future prospects and awareness are considered for better result. A structured questionnaire was prepared for data collection with the help of 100 sample size. Regression and correlation test are performed with the help of SPSS to testing of hypothesis and it comprises data interpretation with the result that it is feasible up to some extent for economic reform.

Index Terms: COVID 19, consequences, POS Terminal, stakeholders.

I. INTRODUCTION

"An economy where all the transactions are carried out without using cash is known as cashless economy". In this COVID 19 pandemic age, where innovation play's magnificent role in each and every sectors like production, transportation, education and many more for the purpose of maintaining social distancing and as well as societal development where there is a need to become a global economy, online transactions plays a vital role for conversion of Indian market into global market. In the past decades, uses of debit and ATM card have increases for only withdrawal of currency from ATM and only 5% transactions were carried out digitally. According to [1], we are the fourth largest economy using cash and it contributes around 12% of GDP in India.Less banking habits due to the lower literacy rate, insecurity, poor connectivity, lack of proper digital infrastructure etc are some of the basic hurdles of cashless economy. According to author [2], retailers from unorganized sector generally don't accept debit and credit cards due to deficiency of proper digital infrastructure for transaction. Generally jewelry merchant and gold traders approach to their customers to go with cash against debit card or online transaction to save 2 or 3% extra service charge. Customers are uncomfortable some times and having less faith is also one of the basic reasons to avoid cashless or digital transactions. The provisions should develop by the government which reduces extra service charge and offer cash back facilities for the customers specially to adopt cashless method. The benefits of cashless transaction are never considered by the peoples before and it's a common perception that lots of risk associated with cashless transaction but the scenario has change, the new era of fast moving economy consider number of benefits associated with cashless transaction like avoidance of carrying large amount of cash, unaccounted income can be avoided due to tax evasion, transparency in the transaction, printing and floatation cost of currency should be reduce and so many hidden benefits are also over there. In the tribal state like Chhattisgarh, where limited regions are capable to avail the services regarding cashless transaction with proper financial infrastructure and rest of the areas are still consider as an under developed with

limited technological scope, hopeless literacy level, number of banks accounts are limited and peoples are still struggling for their survival and lots of basic problems are confronted by the peoples which strongly proves that the prospects of conversion of cashless are limited.

II. CONCEPTS AND CONSEQUENCES

The concepts of cashless means minimum utilization of cash. A society where all the bills and payments are made by electronic money media. Where debit and credit cards, POS terminal, swipe machine, mobile wallets are used instead of cash. Currency option is getting old in modern revolutionary age. Upcoming generation find more digital as compared to the past. This paper enlighten the technological age which is directly associated with the youth and they find more comfortable themselves with electronic payment system. Convenience, comfort and security are the first prioritywhich forcefully drives the society in order to convert cashless. This paper consist the benefits of modern techno-friendly circumstances which are driven by various digital instruments like debit and credit cards, POS Terminal, smart cards, arrivals of smart phones with 3g-4g network, electronic cash etc. conversion of overall society into cashless is an emerging trend which explore the sustainable financial stability, effective utilization of monetary resources which is helpful for the government in order to development of the whole society, construction of highway's, cannels, dams, infrastructure development, etc. government should also capable to provide better educational and employment facilities. Through cashless system, government collect huge amount by direct and indirect tax which drives the facilities of financial inclusion and improves per capita income. It also helps to reduce inflation rate. GDP and revenues will definitely be upgraded when services and production flows at their proper manner. Defense will be strong and problems of fake currency should reduce.

III. PROBLEMS AND PROSPECTS

The main aspects of E-Commerce and cashless society is whether the benefits would be greater than drawback, government supposed to highlight the benefits rather than drawbacks when it is important to become cashless society and due to COVID, peoples forcefully adopt paperless transaction system to avoid infection from Corona virus. The main issue is to remove monetary crimes and establishment of financial stability. When there is a need of sustainable development, financial resources should be utilized properly. Cashless circumstances should only be developing by government and it requires proper monitoring because the major drawback of cashless society consist privacy issue and hackers. Peoples every time afraid about financial fraud and uncomfortable as they perceive that their financial data should not be leaked and they perceived that their confidential data should not exposed to government. Another major drawbacks of cashless society is "computer hackers", cyber cell determined some fictitious companies or imaginary financial institutions which resemble like authorized institutions, set up dummy companies, alter record, and many more.However technological advancement means hackers become more successful in making copies of financial data with magnetic strip and digital signature in order to commit fraud [3].

All the stakeholders are required to indulge themselves for conversion of cashless society. Financial institutions, intermediaries, corporate agents, nationalized and private banks and government agencies are required to adopt this innovative system of transaction with trust in digital currency. As the economy easily consider cashless system, all banks- large and small- must evaluate their existing technology, remove the chances of error, improves better connectivity, enhance efficiency and transparency. Proper unique identification number and facilities of biometrics should be available to the customer. Convenience and trustare the major drivers which spark innovation and enhance the quality of financial transaction which develop

transactional habits through digital currency and improve the trust on E-Commerce.

IV. REVIEW OF LITERATURE

This research paper enlighten that the digitalization surrounds everywhere in the economy and peoples are supposed to prefer electronic channels in the place of cash and slowly these electronics channels will definitely conquered overall cash dominating scenario and rises the new era of digitalization [1].

This research paper [2] explore the facts about the growth of choices of transaction system apart from cash. Due to change in the habits of banking transaction, peoples are supposed to look most convenient, time saving, and secure mode of transaction and electronic gateway provides the platform to ensure all these required criteria which upgraded the facilities which is looking for the peoples from the past long years.

This paper tries to focus on the transformation of cash to cashless transaction system [3]. All efforts are made by government and their stakeholders for transforming of cash into cashless and their advantageous includes for the purpose of reveals the facts that electronic or digital transaction system are beneficial for the society as a whole but it is a tough task to convert all the transaction into cashless and sometimes cash would consider better then cashless and India spend a very long years to transform into cashless which is now seems to be impossible.

V. OBJECTIVES OF THE STUDY

1. To determine the effects of challenges and opportunities of paperless economyin Chhattisgarh during COVID 19.
2. To find out the most preferred modes of transaction in Chhattisgarh during COVID.

VI. HYPOTHESIS OF THE STUDY

H01 There is no significant relationship between challenges and opportunities with paperless economy in Chhattisgarh during COVID 19 pandemic.

H02 Various transaction modes having the same impact on paperless transaction system during COVID 19 pandemic.

VII. METHODOLOGY

A. Population: We have decided to study the paperless transaction in business during post COVID scenario, especially from tribal areas, hence people visiting retail outlets for purchasing constitutes population for this study.

B. Sampling Design:

(a.) ***Sampling Design:*** As the size of population is unknown, thus we have decided to adopt non-probability sampling technique for this research. We are going to consider the existing four zones formulated by government of Chhattisgarh as quotas and equal amount of data will be collected from each quota.

(b.) ***Sampling Technique:*** To get easy access to the desired amount of responses, we have decided to adopt convenience sampling method for collecting the data.

(c.) ***Sample Size:*** A sample of 100 respondents will be considered as sample size for this research.

(d.) ***Research Instrument:*** Structured questionnaire.

(e.) ***Sources of Data:*** Primary data will be collected with the help of structured questionnaire through survey.

Secondary data will be collected from books, online and published journals, research papers etc.

VIII. DATA ANALYSIS AND INTERPRETATION

This chapter reports the analysis and interpretation of the data collected through questionnaire from interview done among the customers visited in different retail outlets for purchasing through cashless transaction system in Chhattisgarh during COVID 19. Based on the research objectives identified, Hypothesis formulated and questionnaire administered for the field work, the following analysis was carried out.

- Descriptive statistics including frequency charts and histograms on sample characteristics i.e. demographic variables, general perception towards problems, prospects and feasibility of cashless transaction system in 4 different regions of Chhattisgarh.
- Factor analysis for identifying the factors affecting the paperless transaction system of the customers during COVID 19.
- Test of Regression to understand the degree of impact of awareness, knowledge, digital infrastructure, trust and security and convenience with perception regarding cashless forms.
- Correlation is carried out to test the formulated hypothesis.

Demographic profile of the respondents		
Gender (N=93)	**Frequency**	**Percent**
Male	61	57
Female	39	36
Age (N=93)		
Up to 25 years	22	20
25 to 35 years	48	45
36 to 45 years	30	28
Education (N=93)		
Graduation	29	27
Post-Graduation	43	40
Others	28	26
Profession (N=93)		
Students	30	28
Businessman	39	36
Salaried	31	29
Income (N=93) in lakhs		
Up to 2.50/annum	42	39
2.50 to 5.00/annum	33	31
Above 5.00/annum	25	23

To find out the feasibility of paperless system for transaction, a likert scale type questionnaire was prepared which includes all parameters which are associated with the user's choice and preferences of transaction. 100 questionnaires were distributed to the respondents, out of 100 questionnaires, 7 were rejected and 93 were accepted for analysis. So far analysis is concerned; SPSS is used for analysis of data.

H01 there is no significant relationship between challenges and opportunities with paperless economy in Chhattisgarh during COVID 19 pandemic.

Independent Variable	Dependent Variable	Analysis Performed	Conclusion
Awareness	Perception regarding cashless forms	Regression Analysis	As given by the R Square value, the degree of explanation of the dependent variable by the independent variables is low at 8.2%. The model is statistically valid as given by the F score (F = 4.808, p = .000). Therefore, based on the R Square, it can be summarized that awareness influence the perception regarding cashless transaction by 8.2%. Thus null hypothesis is rejected
Independent Variable	**Dependent Variable**	**Analysis Performed**	**Conclusion**
Knowledge	Perception regarding cashless forms	Regression Analysis	As given by the R Square value, the degree of explanation of the dependent variable by the independent variables is low at 4.1%. The model is statistically valid as given by the F score (F = 3.697, p = .001). Therefore, based on the R Square, it can be summarized that knowledge has positive relationship with the perception regarding cashless transaction by 4.1%. Thus null hypothesis is rejected
Independent Variable	**Dependent Variable**	**Analysis Performed**	**Conclusion**
Digital Infrastructure	Perception regarding cashless forms	Regression Analysis	As given by the R Square value, the degree of explanation of the dependent variable by the independent variables is low at 5.4%. The model is statistically valid as given by the F score (F = 4.631, p = .000). Therefore, based on the R Square, it can be summarized that digital infrastructure has positive relationship with the perception regarding cashless transaction by 5.4%. Thus null hypothesis is rejected
Independent Variable	**Dependent Variable**	**Analysis Performed**	**Conclusion**
Trust & Security	Perception regarding cashless forms	Regression Analysis	As given by the R Square value, the degree of explanation of the dependent variable by the independent variables is low at 5.4%. The model is statistically valid as given by the F score (F = 3.181, p = .001). Therefore, based on the R Square, it can be summarized that trust and security influence the perception regarding cashless transaction by 5.4%. Thus null hypothesis is rejected
Independent Variable	**Dependent Variable**	**Analysis Performed**	**Conclusion**
Convenience	Perception regarding cashless forms	Regression Analysis	As given by the R Square value, the degree of explanation of the dependent variable by the independent variables is low at 3.3%. The model is statistically valid as given by the F score (F = 3.625, p = .003). Therefore, based on the R Square, it can be summarized that convenience influence the perception regarding cashless transaction by 5.4%. Thus null hypothesis is rejected

H02 various transaction modes having the same impact on paperless transaction system during COVID 19 pandemic.

Variable 1	Variable 2	Analysis	Results
Cash	Awareness	Correlations	there are significant correlation coefficients among the variables within the acceptable region of 0.01 and 0.05, hence null hypothesis is accepted stating that there exist a significant relationship among the methods of payment opted by consumers have significant relationship with awareness regarding cashless transactions
Debit or Credit cards			
Mobile wallets			
UPI			
Cash	Knowledge		there are significant correlation coefficients among the variables within the acceptable region of 0.01 and 0.05, hence null hypothesis is accepted stating that there exist a significant relationship among the methods of payment opted by consumers have significant relationship with knowledge regarding cashless transactions
Debit or Credit cards			
Mobile wallets			
UPI			
Cash	Digital Infrastructure		there are significant correlation coefficients among the variables within the acceptable region of 0.01 and 0.05, hence null hypothesis is accepted stating that there exist a significant relationship among the methods of payment opted by consumers have significant relationship with digital infrastructure regarding cashless transactions
Debit or Credit cards			
Mobile wallets			
UPI			
Cash	Trust & Security		there are significant correlation coefficients among the variables within the acceptable region of 0.01 and 0.05, hence null hypothesis is accepted stating that there exist a significant relationship among the methods of payment opted by consumers have significant relationship with trust and security regarding cashless transactions
Debit or Credit cards			
Mobile wallets			
UPI			
Cash	Convenience		there are significant correlation coefficients among the variables within the acceptable region of 0.01 and 0.05, hence null hypothesis is accepted stating that there exist a significant relationship among the methods of payment opted by consumers have significant relationship with convenience regarding cashless transactions
Debit or Credit cards			
Mobile wallets			
UPI			

IX. RESULTS

This research intended to collect the information about the impact of COVID 19 pandemic into the business in Chhattisgarh and the problem confronted to the public specially retailers from retail sectors. It is expected that retailers harassed up to some extent due to pandemic, but later on they will consider the another mode of transaction besides of cash and prevention of risk of infection with take remedial action, precaution and they will become familiar of uses of paperless transaction system. Due to the lack of informational resources where still huge population doesn't have their bank account and limited number of debit and credit card holders and consumers are still perceived paperless system as an unfaithful mode of transaction. Peoples forcefully adopt paperless transaction system to keep away from Corona virus and this forceful step make familiar and habitual to adopt paperless transaction system which conditionally and unconditionally brings a new era of transaction model. This research paper identifies the various factors which stop a consumer to not take part in paperless transaction as they perceive several risks with it. By identifying these perceived risk and factors, this research suggests retailers to take effective security measures which make consumers feel secure financially. It is a difficult task to adopt cashless payment system everywhere in the state but the scenario is going to be change and retailers will definitely accept cashless transaction system without any hesitation and taking their steps towards cash to cashless economy.

X. CONCLUSION

In the tribal state like Chhattisgarh, study about paperless economy is rarely conducted just because of limited scope and circumferences. A wide variety of informational resources regarding cashless transaction are usually insufficient as compared to other states due to the lack of multinational companies, limited scope of information technological circumstances, least number of organized retail sectors, or sectors which could not support and

encourage paperless system. On the basis of above discussion, it found that COVID 19 pandemic is treated as surgical strike on behalf of the prevention of infection and development of entire economy. It usually a tool for prevention of economic disease like corruption, mobilization of unaccounted income through process of removing a currency from general usage or circulation which simultaneously support cashless payment system, reduction of printing, distribution and floatation cost of money, provide freedom to the public to avoid bank or ATM queue, apart from ATM withdrawal different methods and uses of debit and credit cards, internet banking, swipe machine etc. It is a revolutionary step taken by the government although it is difficult to promote in the tribal states like Chhattisgarh where the population are basically unaware and lower literacy rate surrounds over there. These are some hurdles which interrupts Chhattisgarh to become cashless from cash and the basic objectives of this research is to find out the choice of the peoples about consequences of cashless transaction.

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Wider Possibilities in Geo-Tourism in Chhattisgarh State

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Abstract:

Geoscience and tourism are field oriented, branches of applied science related with natural phenomena. Both depend upon physical observation of visible earth resources prevailing on the land surface. Their interrelationship is governed by biodiversity, heritage, culture and land form besides the motivation of interested person inorder to get internal happiness. Chhattisgarh is much rich in this respect, but yet to be explore wisely, Geotourism centers are identified in Chhattisgarh and discussed their silent geological significance as well as their interest of tourism. The basic information for the geocenters is reviewed-scattered in six districtnamely Balrampur, Sarguja, Manendragarh, Bilaspur, Jagdalpur and Baster.

Index Terms: Sustainable, geo-tourist, biodiversity, geo-thermal.

I. INTRODUCTION

Geotourism is defined as tourism that sustains or enhances the distinctive geographical and geological character of a place-its environmental, heritage, aesthetics, culture and the well-being of its residents, Geotourism deals with the natural and in built environment. Geotrourism was first introduced by Hose, (1995) in England, with considerations of two factors namely:

(1) Purely geological and geomorphological focused sustainable tourism as abiotic nature based tourism.

(2) Geographically sustainable tourism.

We see that it is made up of Abiotic, Biotic and Cultural (ABC) attributes. The first attribute of the 'A' or abiotic features including rocks, land forms. The 'B' or biotic features of fauna (animals) and flora (Vegetational Plants) 'C' or cultural component.

A. Geotourism in general is based upon 13 parametersand are as follows:

(i) Integrity of place.
(ii) International codes
(iii) Market tourism
(iv) Market diversity.
(v) Tourist satisfaction
(vi) Community involvement
(vii) Community benefit
(viii) Protection and enhancement of destination appeal
(ix) Land use
(x) Conservation of Earth resources
(xi) Planning
(xii) Interactive interpretation
(xiii) Terrain Evaluation

Geological excursion at graduate level among Indian University is a sort for observation of the natural feature in the field. Tourism in Chhattisgarh is the retained portion of biodiversity, heritage, and culturebesides natural features after separation from the erstwhile the Madhya Pradesh State in Nov.2000. The tourist attraction for C.G. may be visualized through folk song/poem as follows [1]-

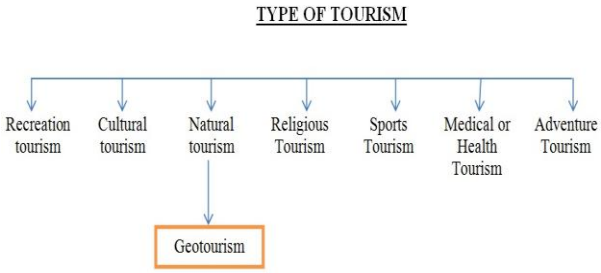
माटी–पत्थर, सोना–चांदी

पत्ता–पत्ता, हीरा–मोती।

पतीत–पावनीरत्न–गरभा

यह छत्तीसगढ़ की धरती।।

And attempt has been made to focus on authentic information towards prospective promotion of geoscience and tourism both together as geotourism in Chhattisgarh.



Tourist has always affinity with natural feature on account of its scenic beauty and eye pleasing land scrappattern. C.G. has 27 districts as per Nov.2015 status and some of districts have full potential for promoting geotrourism. These districts are (Shown in TABLE I):

TABLE I: Population of major tourism district in Chhattisgarh as per 2011 census

City	Type	Population
Raipur	Municipal Corporation	1,010,087
Durg-Bhilai	--"--	8,94,376
Bilaspur	--"--	3,30,106
Jagdalpur	--"--	1,25,345
Ambikapur	--"--	1,14,575
Rajnandgaon	--"--	2,63,122

II. GEOGRAPHIC LOCATION

C.G. state has more aerial elongation in North-South Trend along longitude East 80°15'-80° 24' The prominent geotourism centre is illustrated as FIGURE:I

Map :India →Chhattisgarh→Geotourism Places

The known tourist centres of C.G. are related to geoscience and related aspect by and large on top priority. The next priority lies with archeological sites, bio diversified flora and fauna, followed with monuments and pilgrimage spots. The prospecting view of geotourism may be experienced by an expert geoscientist with diversity knowledge to man welfare; the tourist has been attracted by medicinal value come health resort point of view. The citable examples are hot spring of Tatapani, Staglamite and Staclatite of limestone caves eye pleasing cum wonder of nature as water park as Chitrakut waterfall and marine fossiliferous bed of perminian age in Manendragarh.

B. Governing Parameters of Geotourism in Chhattisgarh

The available geotourism in C.G. are governed by following parameters.

- Natural Spring
- Natural Water fall
- Natural Cave
- Origin of seven rivers with changing of colour in analogy with sunspectrum
- Island in River
- Marine fossiliferous bed
- Platen possessing major river flow in three direction.

Chhattisgarh deserves geotourism for the following factors:

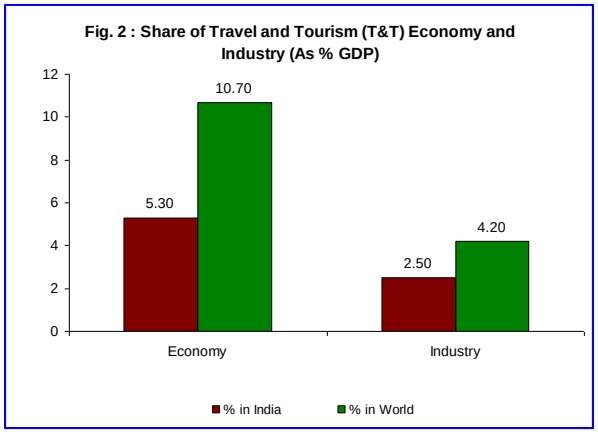
1. Tourism-important contribution to the economy.
2. Creation of jobs for local people.
3. Promotion of geological attraction.
4. Conservation of important geological sites.
5. Preservation of National and International sites.

Chhattisgarh is growing state in all respect. Total population of Chhattisgarh is 2.55 Cr. As of 2011 census decadal population growth is recorded as 22% from 2001 to 2011. It is 9th from top in decadal population growth in the country.

TABLE II: Existing Tourist &Traffic and Comparison with National Data

Particulars	**Chhattisgarh**	**India**	**% of India**
Domestic Tourist (in No's.)	6,00,000	21,01,13,540	0.28%
Foreign Tourist (in No's)	11,000	24,88,371	0.44%
Total Tourists (in No's)	**6,11,000**	**21,26,01,911**	**0.29%**

In 2001, Travel & Tourism (T & T) in India was expected to generate Rs.1564 billian of economic activity (Total demand) making India the 22nd largest tourism market in the world. The T & T economy in India accounts for 5.3% of the GDP as against 10.7% of DGP worldwide the T&T Industry in India contributes 2.5% in GDP as compared to a world average of 4.2% (Figure : II) [2-8].



III. DESCRIPTION OF MAJOR GEOTOURISMCENTRES IN C.G.

A. Hot spring of Tatapani:

It is located in district Balrampur on National High way connecting Ambikapur and Ramanujganj. The word Tatapani is derived from hindi language 'Taptapani' which has literal meaning of Hot spring. It has eight to ten small Kund (spring) of hot spring. The temperature of hot spring varies in range 96-100 ^{0}C and contains high amount of Sulphur. G.S.I. and O.N.G.C. has drilled the site upto 1500 meters depth and observe that geothermal energy with steam is bubbling out from the estimated depth of 8 km within the earth crust. It has tourist attraction (Figure III) due to following three reasons-

1. Hot water is used as therapy for skin disease removal through taking bath.
2. Potatoes are boiled by putting container through rope in the pool within a few minutes.
3. Eggs are also boiled at analogy with potatoes, without deterioting its taste.

The site has full potential to develop as one of the geotourism centre on the line of old faithful geyser (hot spring) of famous yellow stone national park (USA). It is the only geothermal resource of entire C.G. and Poddar V.C. of G.S.I. has conducted detail study for several years and technical data is available in memoirs of G.S.I.

FIGURE III: Geothermal scenario of Tatapani

B. Kutumsar Cave:

It is located in district Jagdalpur and belongs to Kanger Valley national park. The cave has staglamite and staclatite in krasticlimestrone terrain. These are typically formed due to solutional activity in limestone terrain along with interaction with local ground water resource. The krastic lime stone belongs to Precambrian age (2500 M.Y.ago). It is said that ancient women being had used for living purpose during 4000-6000 B.C.(Figure IV)

In local language Kutumsar means a fort surrounded by water. It is said once the whole area was submerged in water.The water does contain blind fishes. The eyes of fishes could not probably develop due to darkness and non-reachable of sunlight. The limestone caves can be developed due to presence of staglamite and

staclatite due to prevailing of solutional activity beneath soil profile. Staclatite growth downwards from the roof site. Staglamite builts upwards from flow. Both land forms provide magnificient view along with mysterious thrill to the tourist. Attempts are being made to declare it as National heritage. Posta give cave in Northern Yugoslavia (Presently Salvania) is a most popular trouring spot in the world for looking staclatite and staglamite (Bloom Arthur, 1912). The Kutumsar cave have full potential on develop for similar line.

Figure IV: Kutumsar Caves

III. Tintini Stone:

It is located near Darima air strip of Ambikapur-district headquarter of Surguja. It has rocky outcrop, probably of meteoritic origin (came from other planet) which provides metallic sound when it is hitted with an object. The nature of sound vary the kind of object its hardness and hitting intensity. Normally it provides sound of temple's bell, so locally called as tinting stone, Geologically stone has higher content of Iron and Nickel and may be the part of Ni-Fe (Nickel & Ferrus) of other planet or from broken part of Meteorites (Figure V). The detailed analytical study of the stone yet to be carriedout from geological point of view.It is an attraction for local tourist and state level through C.G. Tourism Board.

FIGURE V: Tintini Stone at Darima

IV. RIVER OF RAINBOW COLOUR

It is located near Barasur in district Jagdalpur along Indravati River. The river flow in seven different streams with different colour in analogy with solar spectrum on account of local rock type and vegetation occurrence in rainy season. It provides beautiful seen with blue colour of Indravati river. It has full attraction for tourist and can be developed at state level (Figure VI).

FIGURE VI: Seven Streams

V. SPONGY LAND

It is located near Mainpat in district Sarguja. Mainpat is famous for bauxite open cast mining by Balco as well as shelter place for Tibbati Refugees.It has cold climate with thick vibrationcover spongy land contains of area about 4 acres and locally called Jaljala. It has characteristics of full of spongy and if a person jumps over it gets feeling of vibration at his feet (Figure VII (a).

The region for Jaljala probably Geological cumMinning oriented.The earth strata pore spaces filled with water instead of air with contacting pore shear strength flowed with liquidification. It seems to be adverse impact of bauxite excavation below local ground water table.

It is very attractive for local people and has full scope to develop at state level.

मैनपाट की स्पंजी जमीन

मैनपाट को ठंड और तिब्बती शरणार्थियों की बस्ती के कारण छत्तीसगढ़ का तिब्बत कहा जाता है। यहां जलजला नाम की जगह पर चार एकड़ जमीन लंबे समय से लोगों की दिलचस्पी का केंद्र है। इस स्पंजी जमीन पर उछलने से आसपास की जमीन पर कंपन का अनुभव होता है। ठीक उसी तरह, जैसा किसी गद्दे पर उछलने से महसूस हो सकता है। स्थानीय जानकारों के मुताबिक कभी यहां जलस्रोत रहा होगा। यह समय के साथ ऊपर से सूख गया और अंदर जमीन दलदली रह गई। इसी वजह से भार पड़ने से पूरी जमीन हिलती है।

धरती स्पंजी होने की वजह

यह टेक्निकल टर्म लिक्विफैक्शन का एक उदाहरण है। **भूविज्ञानी डॉ. निनाद बोधनकर के अनुसार** लिक्विफैक्शन इंगित करता है कि यहां भूकंप जैसा प्रभाव भी आ सकता है।

- 1997 में जबलपुर में भूकंप आने के बाद होशांगाबाद नर्मदा के क्षेत्र में ऐसे दलदली क्षेत्र का निर्माण हुआ था। मैनपाट में पता लगाना चाहिए कि धरती स्पंजी क्यों हो रही है। वैसे यह इलाका देश के भूकंप संवेदी क्षेत्रों में है।
- पृथ्वी के आंतरिक दबाव तथा पोर स्पेस (खाली स्थान) में सॉलिड के बजाय पानी भरा हुआ है। इसलिए भी यह जगह दलदली और स्पंजी लगती है।

FIGURE VII (a): Spongy Land at Mainpat

FIGURE VII (b): Spongy Land at Mainpat

A. Madku Island in Shivnath River:

It is said that the Island belongs to Maharsi (Saint) Madku who worship at this place under thick vegetation cover (Figure VIII). It has several archeological site belongs to king Kulchuri. The local M.L.A. has made several facilities for the development of tourist like plantation of fruit base trees and rest house the irrigation department has contructed stop dam also.

The PWD's has constructed all weathermotorable road andthe forest department has expense of about Rs. 2 crore of the development of tourist in island. (Sunil Kumar 2013) geologically island the compose of old to recent sediments with rich in natural manure.

FIGURE VIII: Madku Island in Shivnath River

B. Chitrakut Fall:

It is located in Baster district along Indravati river. It belongs plateau fall category.It is associated with river desending from plateau from hard rock formation to low lying area, composed of soft rock formation. It has horse- shoe to amphitheature shape. The thundering come roaring sound of Indravati from the wall of rock produces brilliant blue colourlake surounded by full greenery (Figure IX). It is often regarded as Niagra of India and can be developed as per its full potential on the line of world famous NiagraFall of U.S.A. It is very close to Jagdalpur (HussainMazid 2014).

Figure IX: Chitrakut Waterfall

C. MARINE Fossiliferrous Park :

It is located in district Manendragarh. It is the extention of Umaria Marine Fossil bed of Permian age (Figure X). It has importance in Indian stratigraphy cum palaeontogical obseravtions. It has also attraction for acamedic oriented tourist.

Figure X: Fossils of Brachiopod in Manendragarh District of Permian age

VI. CONCLUSION

Chhattisgarh state is the paradise for every lover of nature, culture, wild life and handicraft. The prominent geotourismcentre in Chhattisgarh are as follow with their major characterisics.

- Tatapani as Hot spring in district Balarampur.
- Kutumsar cave as stalagmite and stalagtite in district Jagdalpur.
- Tintini Stone as meteorite in district Sarguja.
- Spongy and as liquidification in district Sarguja.
- Madku Island of river sediment interaction in district Bilaspur.
- Chitrakut as aWaterfall in Bastar.
- Marine FossiliferrousPark as of palaeontological interest in district Manendragarh.

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Identity Crisis of Indian Women's Face in Pursuit of Social Identity

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Abstract:

From the Vedic period to the modern days every human being has a goal of living a life for some meaningful purpose life but the circumstance and the destination is the only things which lead the path for the fulfilled life. No one has the power to recreate or destroy the past life; it is only the god who plays in a religious form. According to the Indian scenario women is the poor soul who fights for the life in every family for the peace and identity. Even though men are the head of the family, his role in the family is minimum when compared to women. Sudha Murthy an eminent Indian writer, who has supported and encouraged towards many women's life by being a social activist and writing the real time stories of women who has been special identity in the society. Let us see how women face the daily life with various barriers and how she breaks up it and come out with flying colours in her own strength.

Index Terms: Women - eminent – circumstance – recreate – Sudha Murthy - strength - Indian scenario - fights - flying colours – religious - encouraged - social identity.

I. INTRODUCTION

Sudha Murthy was born on 19th August 1950 at Shiggaon, Haveri, and Karnataka and named Sudha Kulkarni. She began her professional career as a computer science scientist and engineer and is currently the chairperson of Infosys Foundation and a member of public health care initiatives of the Gates Foundation. She is an Indian engineering teacher and famous Indian author in Kannada, Marathi and English. She is a prolific fiction author in Kannada and English. She has published several books, mainly through Penguin, that espouse her philosophical views on charity, hospitality and self-realization through fictional narratives. Some of her notable books in Kannada are Dollar Sose, Runa, Kaveri inda Mekangige, Hakkiya Teradalli, Athirikthe, Guttondu Heluve. The book How I Taught My Grandmother to Read & Other Stories has and other favourite stories and Gently Falls the Bakula [1].

The older days saw feminism word in every sphere of life which is nothing but social economical and political etc. **Feminism** means "To establish equal rights for women, No social exclusion of Women the point". Indira Gandhi "To be liberated women must feel free to be herself but not in the context of her own capacity and her personality". A women's life is good only until when she is inside the hands of her mother and when she gets married and enters in to a new relationship the world becomes cruel and the identity is getting erased and some women have totally lost their dignity in the place of wife and daughter-in-law where they don't show out much for the societal purpose. From the ancient times to the modern recent times women has been kept has gender less when compared to men because they are just judged by only physically but not mentally. It is also proven facts

that in the purana's women have been put into struggles to live a happy life in the realtionship in the case of even both queen and normal women. There are several poets like Bharathiyar who stud up against the patriarchal view for women by writing so many women encouraging poems and songs for her. The unfortunate truth is that whatever it may be women is in the same position as it was before in the society. Sudha Murthy as a philanthropist aims to highlight the problems among common public through her social work and books and she mostly takes the problem faced by a common women in the society. Sudha Murthy has given a wonderful portrayed of three different kinds of women in three different stories who proved their special identity in life after so much pains in their silent life. In one of her novel called "Gently falls the Bakula" Shrimathi was a very young charming girls who fell into love with his classmate called Srikanth from the childhood days and got married to him in a unconvinced situation from the Shrikanth's mother . In the patriarchal view a men is considered to be one step more than the women in his family and also there exist Matriarchy in some families with a powerful women who become the family head due to some other purpose like financial stability of her raising strong hands beyond the men. Sudha Murthy mostly makes her novel on the basis of relationship like husband and wife, lovers, mother and son. Shrimathi who is a very normal family when marries Srikanth , her mother who had too much expectations on dowry part but, as a married women Shrimathi who fulfilled her needs by giving back some money to her Mother-in-law through earning be herself .This proves the unique part of Shrimathi towards her mother-in-law as a daughter-in-law is that how much ever her mother-in-law behaved rudely to her in hurting manner by words and action , Shrimathi as a women she believed that as a Daughter-in-law she would make her place satisfied to her through fulfilling the needs of the Matriarchal women. Sudha Murthy in all of her stories always the uniqueness of a women in her stories through beautiful manner by comparing the flower Bakula towards the realtionship of a girl in that family by finishing the story in the realtionship break due to the urge of money by her husband Shrikanth and which makes Shrimathi to go for her higher studies to look after her life for herself. Sudha Murthy has taken the characterization of women in this novel as equal to a flower Bakula which says gain as a feminism nature. In this kind of life, the identity of Shrimathi questions her whether she would like to take up a married life or she wants to continue with her successful career due to her critical situation, which makes her take her independent decision as identity as choosing her future [2].

It is a true fact that women from the born stage till the death has to sacrifice her wants and needs for anyone in the life, let it be as a daughter or daughter-in-law rare as a mother. She doesn't have a real expectations towards her life, rather than she work just fulfil the needs of other member in the family and the society has also made women as a person of adjustment in life and to be always a sacrifice. Very few men get to know the real need of women as a husband in their life to make their dreams true with happiness. Sudha Murthy in one of her other story named "Dollar Bahu" shows a old women Gouramma of a greediness understand the real face of a daughter-in-law after get to know the difference in women and her true nature in it. Vinutha a young woman gets married to Girish her husband. However as the Vinutha's mother-in-law is a greedy person who always want to wander in dream of becomes a wealthy person in Dollar s from other countries money. Since Vinutha was from a poor family she could not bring much to her mother-in-law place, so that was where she lost her respect from her mother-in-law. Unfortunately, when her other sister-in-law Jammuna came into this family she was little wealthier when compared to Vinutha where the mother-in-law gave much preference to her when compared to Vinutha due to the wealth. In another sum of

days Jammuna got settled in out of India due to her husband's work as a green card holder, which was another plus point of Jammuna to treat her as a good daughter-in-law to her mother- in-law. Sudha Murthy here in this story has written Vinutha's feeling towards her mother-in-law in a beautiful manner where she feels that inside her in silence without sharing to anyone and whenever Vinutha had a conversation or a kind of word from her mother-in-law she had been always dominating her by saying Jammuna has bought so much to the house but you had nothing. In India marriage a considered as a traditional function, where it is just considered to be family occasion, where as a women she is been sold to her mother-in-law to her house if the bride is not wealthier when compared to the boy's family and vice-versa happen if the bride is rich where in those kind of family matriarchy exist from the daughter's mother demanding the boy to live in the bride's house itself for their needs. But the fact that it doesn't happens much due to the financial position of earnings by the men and so women is not as. The same is the Vinutha has been sold to the house of her mother-in-law in a less acceptance of daughter-in-law for is son, due to the love marriage. Sudha Murthy always portrays women in story to be very strong with both mental and physical than men, she is supposed be the silent sufferer in the world, where lots and lots of secrets and pains hidden in the room oh heart, which cannot be beard by men.

One of the most beautiful pains of the women in the world is the time of giving birth to her child, where no men can bear the pain, when how much ever he is strong physically. A Woman gets a rebirth of her Janma really when she gives birth to her baby. It is true in case of every woman. Since women has a nature of adjustments in her life, the same which was followed by Vinutha, where she started to be adjusting towards her mother-in-law's attitude towards her and she started to support her Mother-in-law Gouramma as a good daughter-in-law, which is a uniqueness of Vinutha in this story as a her patience is the unique of her. Soon the patience and silence of Vinutha gave her a good result and understanding to her unique character which would be not found in Jammuna. When Jammuna came to India back she taught a good lesson for her mother-in-law. At that point Vinutha's mother-in-law taught about unique identity of her. Gouramma's realisation towards her mistake makes a big sorry for Vinutha and makes understand the real affection and love of Vinutha, which cannot be given by anyone in any kind of situation.

II. CONCLUSION

Sudha Murthy here proves that money a factor can be earned anytime and love and affection are some of the unique feature of a good women who shows at anytime and anywhere or any kind of emotions she faced in her realtionship, let it be a aged are a young girl. Murthy also depicts that women in Indian culture with following traditional phase lives a happy life than the westernized women felling into more problems in life. The perfect finding of the characterization is that there are majorly two kinds of women in the society one is very femininized with soft and adjustable nature by facing all the family and social barriers, the other one is the female dominated namely falls under Monarchy where they don't adjust but rule the power of the family and society where they take control over them as a unique identity.

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छत्तीसगढ़ राज्य के मत्स्य पालन उद्योग का आर्थिक अध्ययन

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सारांश :

छत्तीसगढ़ ज्यादातर महानदी एवं गोदावरी नदी में तंत्र द्वारा आच्छादित है। हालांकि राज्य के कुछ क्षेत्र में गंगा और नर्मदा नदी तंत्र के कुछ हिस्से जुडे है। नदियों की 3573 कि.मी. अनुमानित लम्बाई है। राज्य के मत्स्य उत्पादन में नदी का योगदान आधा प्रतिशत किन्तु इनके किनारों पर रहने वाले मछुआरों की बड़ी संख्या द्वारा मछली, नदी द्वारा प्रदान की जाती है। नदियां भी प्राकृतिक मूल्यवान फिश फोना का स्त्रोत है। 11वीं पंचवर्षीय योजना तहत् इन्द्रावती नदी में मत्स्य बीज का भण्डारण के पुर्नवास हेतु किया गया। प्रारंभिक अवलोकन में उत्साह जनक परिणाम दिखाई दिये। छ.ग. विधानसभा की प्राक्कलन समिति की सिफारिश द्वारा राज्य की नदियों एवं एनीकट में मत्स्य बीज संग्रहण का नवीन कार्यक्रम लागू किया गया है।

शब्द कुँजी **–** अनन्य आर्थिक क्षेत्र, महाद्वीपीय शेल्फ, नीली क्रान्ति एवं एनीकट।

I. प्रस्तावना

स्वतंत्रता की प्राप्ति के पश्चात् देश के समक्ष सबसे गम्भीर समस्या थी, खाद्यान्न में आत्मनिर्भरता और लाखों लोगों के लिए संतुलित एवं प्रोटीनयुक्त आहार का उपलब्ध कराना। छत्तीसगढ़ राज्य सरकार ने अपनी विविध योजनाओं यथा– हरित क्रान्ति, पीत क्रान्ति श्वेत क्रान्ति एवं नीली क्रान्ति को योजनाबद्ध तरीके से प्रारम्भ करने के प्रयास किये हैं। हमारे देश में अथाह जल संसाधन है। भारतीय समुद्र तट 8129 किलोमीटर लम्बा है। इसका अनन्य आर्थिक क्षेत्र (ईईजेड) 20. 2 लाख किलोमीटर तथा महाद्वीपीय शेल्फ 5 लाख वर्ग किलोमीटर का है। हमारे देश में पोखर एवं तालाब 23 लाख हेक्टेयर क्षेत्रफल में है। मानव निर्मित छोटे (1000 हेक्टेयर तक), मध्यम (1000 हेक्टेयर से बड़ा एवं 5000 हेक्टेयर से छोटा) एवं बड़े (5000 हेक्टेयर से बड़ा)जलाशयों का क्षेत्रफल लगभग 30 लाख हेक्टेयर है और ऐसी सम्भावना है कि, निर्माण के विभिन्न चरणों में स्थित जलाशयों के पूर्ण हो जाने पर वर्तमान समय तक इस संसाधन का क्षेत्रफल बढ़कर 60.5 लाख हेक्टेयर हो जायेगा। यह जलाशय मुख्यतः असम, बिहार, पश्चिम बंग एवं पूर्वी उत्तरप्रदेश के गंगा तथा ब्रह्मपुत्र नदी तट क्षेत्रों में स्थित है। ये जल स्रोत सदियों से केवल मात्स्यिकी का ही नहीं अपितु इन प्रदेशों के समस्त ग्रामीण आर्थिक क्रियाकलापों को प्रभावित करते हैं [1-4]।

II. मत्स्य उद्योग के सामाजिक व आर्थिक प्रभाव

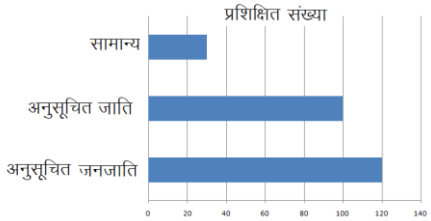
1. मत्स्य आर्थिकी से मत्स्य उद्योग समाज में क्रांतिकारी परिवर्तन की असीम संभावनाएं हैं।
2. मत्स्य आर्थिकी से जहां मत्स्य व्यापार में लगे लोगों का आर्थिक स्तर सुधरा है, वहीं इस वर्ग के लोगों को समाज में प्रतिष्ठित स्थान बनाने का सुअवसर भी प्राप्त हुआ है।
3. ग्रामीण क्षेत्र के मत्स्य कृषकों ने विभिन्न माध्यमों से मत्स्य उद्योग में संलग्न होकर जहां अपना आर्थिक स्तर सुधारा है वहीं दूसरी ओर बाहरी परिवेश में रहकर समाज में फैली कुरीतियों को नष्ट कर अपने सामाजिक स्तर में काफी सुधार किया है।
4. वर्तमान परिवेश में महिलाओं की भागीदारी ने समाज में कुंठित जीवन जीने से बाहर निकलकर उच्च सामाजिक जीवन जीने में काफी सराहनीय प्रगति की है।

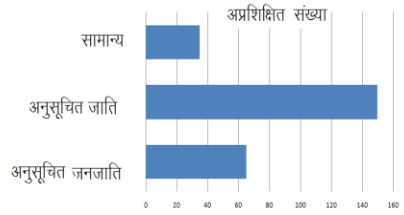
III. शोधार्थी ने अपने शोध कार्य को निम्न उप"ार्षकों के तहत् अध्ययन किया है

1. जाति :

(i) अनुसूचित जनजाति ( ) (ii) अनुसूचित जाति ( ) (iii) सामान्य ( )

जाति	संख्या प्रशिक्षित	प्रतिशत प्रशिक्षित	संख्या अप्रशिक्षित	प्रतिशत अप्रशिक्षित
अनुसूचित जनजाति	120	48	65	26
अनुसूचित जाति	100	40	150	60
सामान्य	30	12	35	14
योग	250	100	250	100



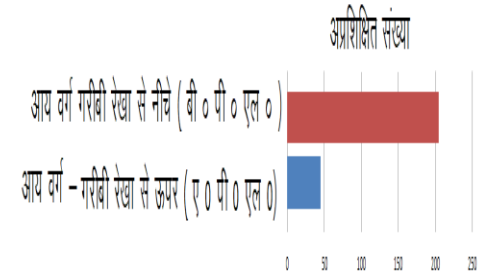


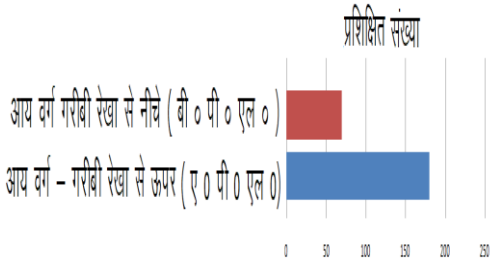
प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि 48% प्रशिक्षित उत्तरदाता अनुसूचित जाति है एवं 26% अप्रशिक्षित उत्तरदाता अनुसूचित जाति है। 40% प्रशिक्षित उत्तरदाता अनुसूचित जनजाति है एवं 60% अप्रशिक्षित उत्तरदाता अनुसूचित जनजाति है। 12% प्रशिक्षित उत्तरदाता सामान्य है एवं 14% अप्रशिक्षित उत्तरदाता सामान्य है।

2. परिवार की कुल वार्षिक आय :

1. आय वर्ग –गरीबी रेखा से ऊपर (ए०पी०एल०)
2. आय वर्ग गरीबी रेखा से नीचे (बी०पी०एल०)

परिवार की कुल वार्षिक आय	संख्या (प्रशिक्षित)	प्रतिशत (प्रशिक्षित)	संख्या (अप्रशिक्षित)	प्रतिशत (अप्रशिक्षित)
आय वर्ग–गरीबी रेखा से ऊपर (ए0पी0एल0)	180	72	45	18
आय वर्ग गरीबी रेखा से नीचे (बी०पी०एल०)	70	28	205	82
योग	250	100	250	100





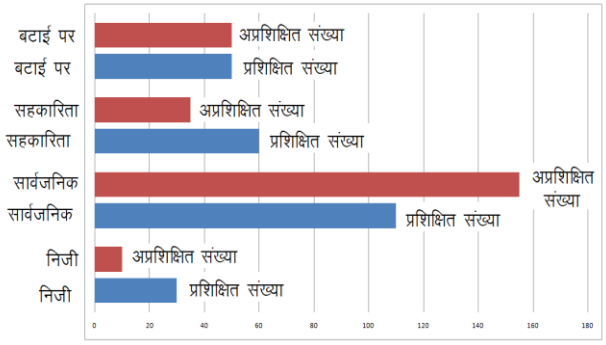
प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि 72% प्रशिक्षित उत्तरदाता गरीबी रेखा से ऊपर हैं एवं 18% अप्रशिक्षित उत्तरदाता गरीबी रेखा से ऊपर 28% प्रशिक्षित उत्तरदाता गरीबी रेखा से नीचे हैं एवं 82% अप्रशिक्षित उत्तरदाता गरीबी रेखा से नीचे हैं ।

3. मछली पालन के लिए आपके पास तालाब है ?

(i) निजी ( ) (ii) सार्वजनिक पट्टे पर ( ) (iii) सहकारिता ( ) (iv) बटाई पर

संख्या मछली पालन के	संख्या (प्रशिक्षित)	प्रतिशत (प्रशिक्षित)	संख्या (अप्रशिक्षित)	प्रतिशत (अप्रशिक्षित)

लिए तालाब				
थ्नजी	30	12	10	4
सार्वजनिक पट्टे पर	110	44	155	62
सहकारिता	60	24	35	14
बटाई पर	50	20	50	20
योग	100	250	100	250

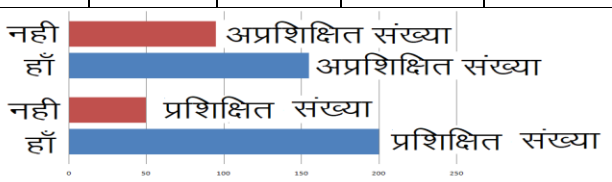


प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि मछली पालन के लिए 30% प्रशिक्षित उत्तरदाता का साधन निजी तालाब है तथा 4% अप्रशिक्षित उत्तरदाता का साधन निजी तालाब है द्य 44% प्रशिक्षित उत्तरदाता का साधन सार्वजनिक पट्टे पर तालाब है तथा 62% अप्रशिक्षित उत्तरदाता का साधन सार्वजनिक पट्टे पर तालाब है।

4. क्या जलापूर्ति का माध्यम है ?

(i) हाँ ( ) (ii) नहीं ( )

जलापूर्ति का माध्यम है	संख्या (प्रशिक्षित)	प्रतिशत (प्रशिक्षित)	संख्या (अप्रशिक्षित)	प्रतिशत (अप्रशिक्षित)
हाँ	200	80	155	62
न्ही	50	20	95	38
योग	250	100	250	100

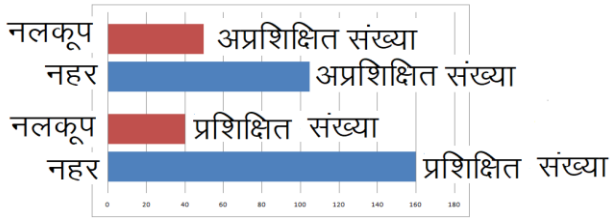


प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि 80% प्रशिक्षित उत्तरदाता के पास जलापूर्ति का माध्यम है एवं 62% अप्रशिक्षित उत्तरदाता जलापूर्ति का माध्यम है। 20% प्रशिक्षित उत्तरदाता को पास जलापूर्ति का माध्यम नहीं है तथा 38% अप्रशिक्षित उत्तरदाता को पास जलापूर्ति का माध्यम नहीं है।

5. जलापूर्ति का माध्यम क्या है ?

(i) नहर ( ) (ii) नलकूप ( )

जलापूर्ति का माध्यम	संख्या (प्रशिक्षित)	प्रतिशत (प्रशिक्षित)	संख्या (अप्रशिक्षित)	प्रतिशत (अप्रशिक्षित)
नहर	160	80	105	67.74
नलकूप	40	20	50	32.26
योग	200	100	155	100

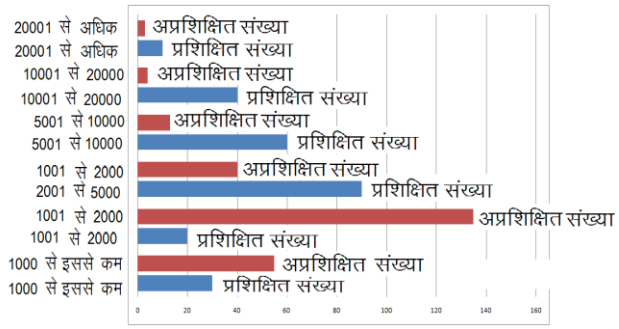


प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि 80% प्रशिक्षित उत्तरदाता को पास जलापर्ति का माध्यम नहर है तथा 67.74% अप्रशिक्षित उत्तरदाता जलापूर्ति का माध्यम नहर है। 20% प्रशिक्षित उत्तरदाता को पास जलापूर्ति का माध्यम नलकूप है एवं 32.26% अप्रशिक्षित उत्तरदाता के पास जलापूर्ति का माध्यम नलकूप है।

6 . मत्स्य उत्पादन की प्रति एकड़ तालाब का वार्षिक लाभांश कितना है ?

उत्तरदाताओं की आय	संख्या (प्रशिक्षित)	प्रतिशत (प्रशिक्षित)	संख्या (अप्रशिक्षित)	प्रतिशत (अप्रशिक्षित)
1000 से इससे कम	30	12	55	22

1001 से 2000	20	8	135	54
2001 से 5000	90	36	40	16
5001 से 10000	60	24	13	5.2
10001 से 20000	40	16	4	1.6
20001 से अधिक	10	4	3	1.2
योग	250	100	250	100



प्रस्तुत शोधकार्य के दौरान तालिका से स्पष्ट होता है कि 12% प्रशिक्षित उत्तरदाताओं की आय 1000 रूपये से इससे कम , 8% प्रशिक्षित उत्तरदाताओं की आय 1001रूपये से 2000 रूपये , 16% की 10001 रूपये से 20000 रूपये एवं 4% की 20001 रूपये से अधिक है। 54% अप्रशिक्षित उत्तरदाताओं की आय 1001 रूपये से 2000 रूपये, 1.6% अप्रशिक्षित उत्तरदाताओं की 10001 रूपये से 20000रूपये , एवं 1.2% उत्तरदाताओं की आय 20001 रूपये से अधिक है।

IV. निदान

जिस तरह से समस्यायें उत्पन्न होती है उन समस्याओं का निपटारा करना भी आवश्यक होता है।प्रत्येक समस्या का कोई न कोई समाधान अवश्य होता है अतः मत्स्य कृषकों के समक्ष आने वाली समस्याओं के समाधान निम्न है–

1 निःशुल्क प्रशिक्षण :

मछली पालन कार्य को लोकप्रिय बनाने हेतु मछुआरों को निःशुल्क प्रशिक्षण दिया जाना चाहिये, जिससे कि मछलियों का उत्पादन करने के विषय में उन्हें पूरी जानकारी अच्छी तरह से प्राप्त हो और वे मत्स्य पालन का कार्य कर सकें ।

2 पर्याप्त मात्रा में संसाधनों का उपलब्ध करवाना

मछुआरों को विशेषकर गरीब (निम्न वर्ग के) मछुआरों को मछली पकड़ने के उपकरणों जैसे–नाव–जाल, रस्सी इत्यादि संसाधनों को शासन द्वारा निःशुल्क रूप से या अनुदान पर उपलब्ध करवाया जाना चाहिये ताकि मत्स्य कृषकों को मछली पालन का कार्य करने में किसी भी प्रकार की समस्या का सामना न करना पड़े ।

3 स्वयं का जलक्षेत्र उपलब्ध करवाना

यदि मत्स्य कृषकों के पास स्वयं के जलक्षेत्र उपलब्ध हो इस हेतु मछुआरों के समूह (पंजीकृत समितियों) बनाकर उन्हें शासन की नीति के अर्न्तगत गाँव के तालाब पाँच वर्षों के लिये पट्टे पर उपलब्ध करवाया जाना चाहिये तथा जिन मत्स्य कृषकों के पास स्वयं की जमीन उपलब्ध हो उन्हें शासकीय योजना के अर्न्तगत अनुदान/सहायता प्रदान कर स्वयं की भूमि में तालाब निर्माण करवाने हेतु प्रोत्साहित किया जाना चाहिए।

सन्दर्भ ग्रन्थ

[1] देहदराई, "भारत में जलाशयों में मत्स्य पालन", प्रोकनेट सेम रिवराईना और रिजर्वायर फिशर, **पेज** : 97–04, 2001 ।

[2] माने. ए. एम. , मीना. डी. , वर्गीस. टी. और सायमला के., "पेन में पालन किये गए कार्प फ्राई की उपज एवं विकास दर पर संचयन दर का प्रभाव", इंडियन जे . कर . मिक्रोबिओल एप . साइंस, **खण्ड** : 6, **नंबर** 4, **पेज** : 641–648, 2017 ।

[3] मुखर्जी , जे. दास , एस. के. सहगल, वी. के. वशिष्ठए. सिंह , और एस. के. बरारी (2014) "दक्षिण पश्चिम मानसून और भारत का खाद्यान्न उत्पादन", कृषि भौतिकी जर्नल , **खण्ड** : 14, **नंबर** 1, **पेज** : 73.79 ।

[4] मोहंती , एस . के ., "ओडिशा में जलाशय मत्स्य पालन के विकास के लिए एक दृष्टिकोण मेः प्रो . ताजे पानी में रहने वाली मछली" , ग्रामीण विकास सेक . आई . **पेज** : 40–46, 1984 ।

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Judicial Activism – An Efficient Tool to Curb Human Trafficking

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Abstract:

Human Trafficking is worst form and manifestation of human exploitation leading to erosion of human values and ethics. The Courts of Law act as Supreme interpreter, protector and guardian of the supremacy of the Constitution by keeping all authorities – legislative, executive, administrative, judicial or quasi-judicial within legal bounds. The judiciary by way of judicial activism plays a significant role in protecting human rights for each and every citizen of India. The Courts of law have undertaken various benevolent and philanthropic measures to strengthen institutional machinery and various / numerous statutory agencies mandated by various statutory enactments which in turn plays a decisive role in keeping human trafficking within four corners of law.

***Index Terms*:** Judicial activism, Constitution, Black's Law Dictionary, Justice Verma Commission, Adoption and Fundamental Rights.

I. INTRODUCTION

Human Trafficking is an emerging issue which has several effects in the society and is a potential threat to welfare state. Growing incidences of Human Trafficking portrays a sorry picture of the society and the very constitution of the family, which is the basic survival unit of the society. Human Trafficking in its every form corrodes human values and basic instincts. When the problem of Human Trafficking is increasing day by day, the role of Courts are much decisive & important to preserve the dignity and meaningful life of the human beings. When the judiciary, under the guise of interpreting the law for the welfare of the society, goes a step beyond, and ends up giving the country new binding law, which is usually different from the existing laws, then it constitutes judicial activism. In the modern scenario, judicial activism has significantly tried to tackle the evil of Human Trafficking by landmark judicial pronouncements having sanctity and force of law. That the Courts of Law by interpreting various inbuilt provisions of law and other local enactments have enlarged the scope and ambit of human values and Article 21 of the Constitution of India which specifically deals with right to life and liberty. The Hon'ble Apex Court time and again has echoed for strengthening a meaningful and dignified life for each and every human being as human rights are inalienable basic rights guaranteed to each and every human being by virtue of birth [1].

II. SIGNIFICANCE

The significance of the present study is to bring out several parameters and factors which have led to judicial activism and the enlargement of scope of Courts of Law. This study also focuses on various judicial pronouncements which have brought sea change in the enforcement of human rights and thereby curbing human trafficking especially women and child trafficking. The present study also tries to pinpoint the role played by the judiciary i.e. both by the Hon'ble Supreme Court as well as the Hon'ble High Courts in interpreting law and thereby addressing the issue of human trafficking. It also lays importance about Article 32 and 226 of the Constitution of India which helps to enlarge the scope and ambit of Courts of Law while interpreting common law for the benefit of the society or for the benevolence of public at large. Thus this study aims to highlight various factors which has made judicial activism an efficient tool to curb human trafficking.

III. MEANING OF JUDICIAL ACTIVISM

According to Black's Law Dictionary, Seventh Edition, the word judicial activism means a philosophy of judicial decision – making whereby judges allow their personal views about public policy, among other factors, to guide their decisions, usually with the suggestion that adherents of this philosophy tend to find constitutional violations and are willing to ignore precedent. Judicial activism happens when the Courts have power to review the action of the State or any of their instrumentalities. Article 13 read with Articles 32 & 226 of the Constitution of India gives power of judicial review to the higher judiciary to declare any legislative, executive or administrative action, void if it is in contravention with the constitutional provisions. The power of judicial review is a basic feature of the Constitution of India. Article 32 of the Indian Constitution gives right to every individual to move directly to the Supreme Court of India for enforcement of their fundamental rights as enshrined in Part III of the Constitution. Article 32 confers power on the Supreme Court to issue any order or writ for the enforcement of any of the fundamental rights. The Supreme Court in **Fertilizer Corporation Kamgar Union Vs. Union of India** [2-3] held that the power of the Supreme Court under Article 32 is an integral part of the

A. All India Reporter 1981 Supreme Court 344.

basic structure of the Indian Constitution because it is meaningless to confer fundamental rights without providing an effective remedy for their enforcement, if and when they are violated. It cannot be suspended even during the emergency. Article 226 of the Indian Constitution gives power to the High Courts to issue an appropriate writ in the form of mandamus or other form of writs for enforcement of fundamental rights and even legal rights. In this context the jurisdiction of the High Court under Article 226 is much wider than the scope and ambit of Article 32. Both articles 32 & 226 are basic structure of the Indian Constitution and further Article 227 gives power of supervisory jurisdiction or control to the High Court over the subordinate courts, special courts and tribunals. In **Vishaka versus State of Rajasthan** [2-3] the Supreme Court has held that in absence of enacted law to provide for the effective enforcement of the basic human rights of gender equality and guarantee against sexual harassment and abuse, more particularly against sexual harassment at work places. That further the Supreme Court in **Kalyan Chandra Sarkar Versus Rajesh Ranjan** [2-3] has acknowledged the importance of Article 142 of the Indian Constitution and has observed that Court has power to issue directions and guidelines for implementing and protecting fundamental rights in absence of any enactment.

B. All India Reporter 1997 Supreme Court 3011.

C. All India Reporter 2005 Supreme Court 970.

IV. CASE STUDY

The Supreme Court in Case of **People's Union for Democratic rights versus Union of India, Reported in (1982),** while considering Public Interest Litigation for emancipation of bonded labour, has defined the meaning of forced labour vis a vis Article 23 of the Constitution of India. With the increase in labour trafficking across the country the judgment observed that when a person provides labour or service to another against receipt of remuneration which is less than the minimum wage, he is acting under the force of some compulsion which drives him to work though he is paid less than what he is entitled under law to receive. Thus the Court made it clear that when the persons allege that minimum wage is not being paid by the contractors, the complaint was really in effect and substance a complaint against violation of fundamental rights of the workman under Article 23.

The Supreme Court in case of **Laxmi Kant Pandey versus Union of India Reported in (1984)**, has laid down guidelines for inter country adoptions to check trafficking through adoption rackets. The Court has laid down various procedures to check and monitor inters country adoptions so that children don't end up trafficked. That further in case of **Vishal Jeet versus Union of India Reported in (1990),** has ordered for formation of advisory committee for all States and Union Government to combat human trafficking. The Supreme Court has highlighted the growing exploitation of young woman and children for prostitution and trafficking inspite of stringent and rehabilitative provisions of law under various enactments. The Supreme Court further observed that the Central as well as the State Governments have an obligation to safeguard the interest and welfare of children and girls of this country and have to evaluate various measures and implement them in right direction. That further the Supreme Court in **M.C.Mehta Versus State of Tamil Nadu Reported in (1996)**, while dealing with Public Interest Litigation has laid down various measures to be taken in order to provide support to the child labour and his family. The Supreme Court state that we are of the view that the offending employer must be asked to pay compensation for every child employed in contravention of the act. That further the Supreme Court in case of **Gaurav Jain versus Union of India Reported in (1997)**, has directed to frame national plan of action for rehabilitation of trafficked woman and children and has held that children of prostitutes have the right to equality of opportunity, dignity, care, protection and rehabilitation so as to be part of the mainstream of social life without any pre-stigma attached to them.

That, the Supreme Court in case of **Bachpan Bachao Andolan versus Union of India** has directed the Government to prohibit the employment of children in circuses in order to implement the fundamental right to education [2-3].

A.Writ Petition (Civil) 51/2006, decided on 18.04.2011 by Hon'ble Supreme Court:

The Court further directed the government to provide shelter and rehabilitation to all rescued children at care and protective homes until they attain the age of 18 years. That recently on 08.06.2020, the Supreme Court while hearing the Public Interest Litigation filed by Bachpan Bachao Andalon has issued notices to the Centre as well as the States seeking prevention of child trafficking and in the petition it was pleaded that child trafficking is prone to manifest in two principal ways i.e. child labour and sex trafficking.

V. CONCLUSION/ RECOMMENDATION

That judicial activism no doubt has played an active role in curbing human trafficking and the Court of law by virtue of Article 32 and Article 226 of the Constitution of

India had laid down procedural laws for being implemented on the part of the executives. The judicial activism has brought new era of hope and care whereby the people's voice is being redressed to the maximum. However certain modifications are required for more efficient functioning of Hon'ble Court which is as:

1. Need for time bound disposal of cases so that the aim of speedy trial is achieved and it is also well said that justice delayed is justice denied.

2. Summary trial relating to human trafficking cases.

3. Need for adequate compensation to the victims so that after the painful night they can live a dignified life without being dependent upon the society.

4. Uniform laws need to be made by different States as human trafficking being complex phenomena has different origins.

5. Creating awareness among the law enforcement agencies with special thrust to subordinate courts.

6. Need for active participation of lawyers as they are in direct contact with the victims hence would be able to ameliorate the evil of human trafficking to the best.

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Real Time Polarity Trend Analysis on Sports Events of Twitter Data Streams using Machine Learning Techniques

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Abstract:

This study evaluates real time twitter streaming sports events data analysis which is becoming the fastest and most efficient way to obtain useful knowledge from what is happening now, allowing organization to react quickly when problem appear or to detect new trends helping to improve their performance. For the past several years twitter has been by far the largest user-driven online Sports Event. While many of these Events contain a significant number of user comments, little work has been done to date in extracting trends from these comments because of their low information consistency and quality. In this paper we calculate polarity of sentiments of various sports events with the respect of time and calculate maximum correlation coefficient which is a statistical measure that calculates the strength of the relationship between the relative movements of two variables (positive and negative tweets) by using different classification techniques .We perform sentiment analysis and Polarity of twitter comments related to popular sports events using machine learning techniques. We demonstrate that an analysis of the sentiments to identify their trends, seasonality and forecasts can provide a clear picture of the influence of real-world sports events on user sentiments. Results show that the trends in user's sentiments are well correlated to the real-world events associated with the respective keywords. In this paper, Waikato Environment for Knowledge Analysis (WEKA) is used as a platform to execute different classification models for text classification. In our research paper we use 6 fold cross validation technique because of number of training instances of collected dataset. The results show that the different correlation coefficient values produced by Decision Tree, Random Forest, Linear Regression, and Random Tree, Input Mapped Classifier, Decision Stump and maximum value given by Linear Regression classifier (0.8815).

Index Terms: K Cross fold validation, Data Stream Mining, correlation coefficient.

I. INTRODUCTION

In the proposed system, we perform Real-Time summarization of scheduled sports-events for game tournaments like cricket from twitter stream. We propose an approach that analyses feeling of cricket fans and correlate sentiment to match play. We focus on summarizing sporting events, specifically World Cup soccer matches, because each event takes place over a short defined period of time, there is a substantial volume of tweets about each event, and there is press coverage of each event to serve as a gold standard. For a system using social media like Twitter to keep track of things happening around [1-2]

In this paper we focused on Polarity analysis of tweets which takes into account the amount of positive or negative terms that appear in a given sentence. Polarity in sentiment analysis refers to identifying sentiment orientation (positive, neutral, and negative) but in this paper we only classify the sentiments on the basis

of polarity with the relationship between sentiments by using correlation coefficient [3].

For each comment, the polarity/sentiment of each word is calculated by calculating the number of times the word appears in the positive and negative dictionaries. For each word, the positive polarity is number of times the word appears in the positive dictionary divided by the total number times it appears in both the positive and the negative dictionaries. In sport events generally players, experts and viewers all are present to discuss about various events such as out, over, ball, run and wickets but some viewers express their thoughts through tweets.

In this phase, we classify the sentiment of the tweet by using our calculated sentiment polarity score. We classify the sentiments for sports event dataset. Dataset classify the sentiments in 3 categories as positive negative and neutral. If the polarity score is greater than 0, then the sentiment of a tweet is classified as positive. If the polarity score is less than 0 then the sentiment of a tweet is classified as Negative.

Twitter becomes most popular social media platform these days to publically share thoughts, feelings, views, and opinions with the world. It provides the facility that allows users to share information by way of the short messages called tweets (generally less than 140 characters, about 11 words on average) on a real-time basis. Sentiment analysis helps us in automatically transforming an unorganized large amount of data into an organized form in few minutes. This data can be helpful for sports, government, politicians, organizations, researchers and various commercial applications [4-5].

These set of comments acted as our representative dataset to perform the Sentiment and prediction analysis, allowing us to shed light on the following aspects:

1. Temporal aspects of each comment (using the timestamp of each comment).
2. Relationship between the polarity (positive or negative) of each comment and Real-world Events.
3. Sentiment trends over a particular window of time.
4. Seasonality dependence of sentiment.
5. Sentiment forecasting.

II. POLARITY ANALYSIS RELATED WORK/STUDY AREA

We focused on summarizing sporting events, specifically FIFA World Cup 2015 and IPL 2015. For a system using social media like twitter to keep track of things happening around, we look for following traits: Detection of bursty topic as soon as it emerges; Summarization of related bursty topic; Analyzing feelings of fans and correlating sentiment to game [6].

In this paper we investigate the comments associated with YouTube videos and perform sentiment analysis of each comment for keywords from several domains. We perform sentiment analysis using the Naive Bayes approach to identify the sentiments associated with more than 7 million comments. Analyzing the sentiments over a window of time gives us the trends associated with the sentiments [7].

The correlation coefficient is a statistical measure that calculates the strength of the relationship between the relative movements of two variables. The values range between -1.0 and 1.0. A calculated number greater than 1.0 or less than -1.0 means that there was an error in the correlation measurement. A correlation of -1.0 shows a perfect negative correlation, while a correlation of 1.0 shows a perfect positive correlation. A correlation of 0.0 shows no relationship between the movements of the two variables [8-9].

Correlation analysis proved the hypothesis that the lower rating of the hotel on the Trip Advisor website, the greater percentage of negative sentiment. Results of tests of significance of the correlation coefficient indicate that the data and coefficients obtained in the sample used in this study can be generalized to the population [10].

This paper exploits four machine learning classifiers for sentiment analysis using three manually annotated datasets. The Naïve Bayes found to be quite fast in learning whereas One seems more promising in generating the accuracy of 91.3% in precision, 97% in F-measure and 92.34% in correctly classified instances [11].

Polarity detection is explored and two experiments were done to identify the best combination of preprocessing, features and machine learning techniques to create an optimal model for polarity detection of student's feedback [12-13].

The paper presents different technologies of real-time analysis and it described in detail the Apache Storm framework, which exhibits a better performance for the last several years in the industry, for various applications. Moreover, even if recently introduced tool - Apache Heron was only in few projects integrated, the proposed implementation confirmed the results published by Twitter [14].

The results showed that, even if the task is more complex than classifying polarity in opinionated texts, the use of complex sentiment analysis approaches seems a good basis for classifying polarity for reputation. However, it is still necessary to incorporate a high level of expert knowledge to correctly analyze the reputation of a company [15-17].

This paper develops a combined dictionary based on social media keywords and online review and also find hidden relationship pattern from these keyword. Attitude can be calculated based on polarity check. Sentiment analysis on Online review are done by forming dictionary which shows that it is easier to build dictionary on phrases but complex in case of Twitter as tweets consist of short hands as online review were written in more clear way as compared to Tweets [18-20].

III. METHODOLOGY

In this paper we use python for collection of twitter stream data of sports events and also use machine learning tool such as "WEKA" for correlation coefficient values .various studies are performed for sentiment analysis on textual data that primarily analyze unorganized and unstructured data into an organized and structured manner to find the opinion polarity as positive or negative and neutral. In this paper, we proposed a methodology for a sentiment classification system to classify the sentiment polarity of the tweets. The proposed System allows us to process the Twitter data and to carry out the analysis. Figure 1 shows the basic architecture of our proposed methodology for sentiment analysis where data is extracted from twitter and then sentiment analysis is performed on that data in various phases.

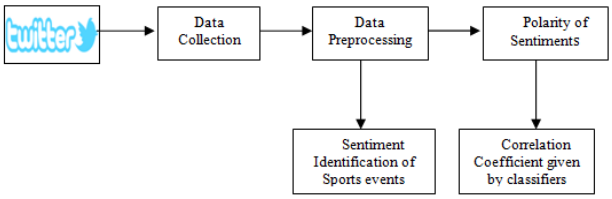

Fig 1: Basic Architecture of Proposed Work

In this paper we use 6 fold cross validation technique because of number of training instances of collected dataset. The K-fold Cross Validation (KCV) technique is one of the most used approaches by practitioners for model selection and error estimation of classifiers. The KCV consists in splitting a dataset into k subsets; then, iteratively, some of them are used to learn the model, while the others are exploited to assess its performance.

The aim of sentiment analysis (or opinion mining) is detecting someone's attitude, whether positive, neutral, or negative, on the basis of some utterance or text s/he has produced. While a first step would be determining whether a statement is objective or subjective, and then only in the latter case identify its polarity, it is often the case that only the second task is performed, thereby also collapsing objective statements and a neutral attitude.

Real time sentiment analysis is a challenging task since the labeled data is difficult to get. The problem can be solved using different methods [21-30] -

Sentiment Analysis (or) Opinion Mining and Machine learning model includes feature set extraction by removing the irrelevant features then apply machine learning algorithms to train the data and learn, then the model is used to predict the sentiment of the text.

The sentiment analysis it is also known as opinion mining, a product opinion is collected and categorized through the sentiment analysis by build a system. Automatic opinion mining frequently uses machine learning to mine the text for sentiment, a kind of artificial intelligence (AI). The opinion, attitude, sentiments, emotions, views etc., are extracts automatically by the Natural Language Processing (NLP) technique, in right context and categorize these into various groups like positive, negative, neutral etc.

A. Sentiment Analysis Techniques:

(I) Machine Learning Technique - Machine learning based Sentiment Analysis or arrangement should be possible in two different ways: Sentiment Analysis by utilizing directed machine learning strategies and Sentiment Analysis by utilizing unsupervised machine learning procedures.

(a) Supervised Machine Learning - In Supervised Machine learning procedures, two sorts of informational collections are required: preparing informational index and test informational collection. A programmed classifier takes in the grouping variables of the report from the preparation set and the exactness in order can be assessed utilizing the test set. Various machine learning calculations are accessible that can be utilized extremely well to characterize the records. The machine learning calculations like Decision Tree, Random Forest, Linear Regression, and Random Tree, Input Mapped Classifier, Decision Stump effectively in numerous examination and they performed well in the feeling characterization.

(b) Unsupervised Machine Learning- Lexicon Based Method is an Unsupervised Learning approach since it does not require prior training data sets. It is a semantic orientation way to deal with opinion mining in which sentiment polarity of highlights show in the given record are controlled by contrasting these highlights and semantic lexicons.

(c) Hybrid Technique-A few researchers combined the supervised machine learning and lexicon based techniques jointly to enhance sentiment classification performance. They considered both general reason lexicon and domain specific lexicon for identifying polarity orientation of sentiment words and feed these lexicons into supervised learning algorithm.

B. Implementation Tool:

We use "Anaconda" which is the data science platform for data scientists in this paper. It is a distribution of Python, R, etc. With more than 300 packages for data science, it becomes one of the best platforms for any project. Anaconda is an open-source distribution for python and R. It is used for data science, machine

learning, deep learning, etc. With the availability of more than 300 libraries for data science, it becomes fairly optimal for any programmer to work on anaconda for data science. Anaconda helps in simplified package management and deployment. Anaconda comes with a wide variety of tools to easily collect data from various sources using various machine learning and AI algorithms. It helps in getting an easily manageable environment setup which can deploy any project with the click of a single button.

IV. IMPLEMENTATION

In this paper data of the twitter stream collected from the twitter streaming using python coding which produce data or tweets of sports events and various graphs related to the each tweet with polarity of sentiments and time with the title "Sentiment of tweets against time". Twitter streaming code in python is used to download the live tweets. There is an example related to tweet such as –

```
class listener(StreamListener):
    def __init__(self):
        self.tweet_count = 0
        self.sum_polarity = 0
        self.all_data = []
        self.time_stamps = []

    def on_data(self, data):
        #tweet_count = int()
        #sum_polarity = int()

        #print tweet data
        pure_tweet = data.split(',"text":"')[1].split(',"source"')[0]
        print (pure_tweet)

        #print polarity of tweet
        polarity = TextBlob(pure_tweet).sentiment.polarity
        print ("Polarity = ", polarity)

        #tweet_count += 1
        print ("tweet count = ", self.tweet_count)
        self.tweet_count = self.tweet_count + 1

        #sum_polarity += polarity
        print ("sum polarity = ", self.sum_polarity)
        self.sum_polarity = self.sum_polarity + polarity

        #calculate and print average polarity for tweets so far
        avg_polarity = self.sum_polarity/self.tweet_count
        print ("Average Polarity =", avg_polarity)
```

Fig : 1- Twitter Streaming Data Collection coding by Python

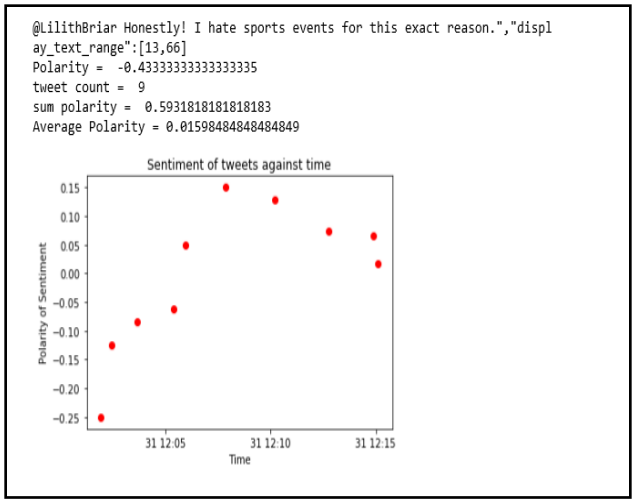

Fig : 2 - Twitter Streaming Sports Event Data Polarity graph with respect of time.

In this research paper we have worked on two processes –

- Find out the polarity of sentiment of tweets given by the user with respect of time for various sports events held in India.
- Find out the correlation coefficient values which is a statistical measure that calculates the strength of the relationship between the relative movements of two variables such as positive and negative tweets.

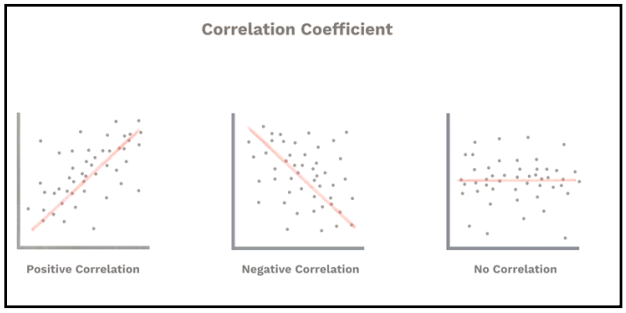

Fig : 3-Types of Correlation for polarity.

The correlation coefficient between two variables X (say height) and Y (say weight) is a numerical measure of **linear relationship** between them, denoted by '**r**'-

$$\rho(X,Y) = \frac{Covariance(X,Y)}{\sigma x \sigma y}$$

Classifier	Total No. of Tweets	Correlation Coefficient
Decision Table	67 tweets of Various sports events	0.669
Linear Regression		0.8815
M5rule		0.7243
Random Forest		0.7258
Random Tree		0.7978
InputMappedClassifier		-0.3894
Decision Stump		0.1686

Table : 1 - Correlation coefficient values for Tweets collected for different Sports Events by different classification techniques

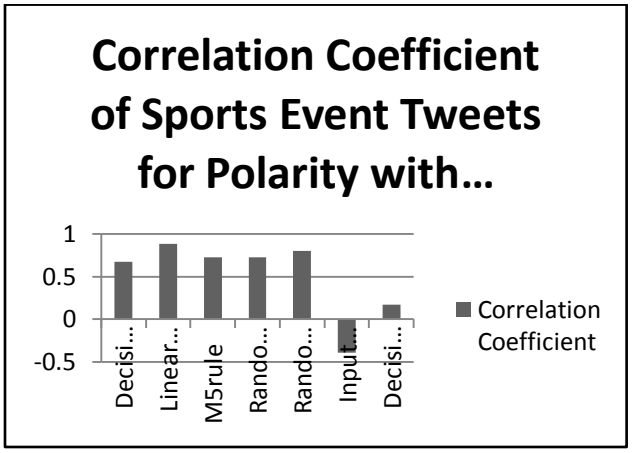

Fig : 4 - Correlation Coefficient of Sports Event Tweets for Polarity with classification

V. CONCLUSION

The results show that the different correlation coefficient values produced by Decision Tree, Random Forest, Linear Regression, and Random Tree, Input Mapped Classifier, Decision Stump and maximum value given by Linear Regression classifier (0.8815). We also find polarity of sentiment of tweets given by the user with respect of time for various sports events held in India. In our research paper we use 6 fold cross validation technique because of number of training instances of collected dataset. By using python twitter streaming data we have collect data and find polarity of sentiments of viewers with respect of time and after that we use WEKA tool to classify or calculate correlation-Coefficient value by applying different classifiers.

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