

**TRADITIONAL
KNOWLEDGE OF
MEDICINAL PLANTS
AND THEIR USES IN
PURULIA DISTRICT:
REVIEW**

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-: INTRODUCTION :-

Rural India is inhabited by number of ethnic groups with their diverse cultural practices, heavily dependent on traditional system of medicine as a part of their lifestyle. Lack of conventional medicinal infrastructure and poor economic condition enable the folk, to practice and inherit alternative systems of medicine to treat diverse types of ailments.

For the last few decades, plants have served as an important source of several novel biomolecules with medicinal potentials. Therapeutic efficiency of plants crude extracts and isolated compounds have been evolved in course of time and generated a number of popular modern day medicines. Novel drug delivery systems have been utilized in the modern herbal formulations.

In several instances, safety efficacy of herbal medicines have been investigated and the World Health Organization (WHO) has estimated more than 4000 million people of the world is dependent on traditional medicines.

Plants have been pharmacologically investigated for anti-bacterial, anti-fungal, cytotoxic, anti-ophidian, anti-hypertensive, anti-ulcerogenic, anti-diabetic and other efficacies. Most of the experiments were carried out invitro and invivo, positive results in which have led into clinical trials culminating into herbal drugs discovery.

The authors have found a few reports of using indigenous phytotherapy having anti-pyretic potential. Some of these traditional uses have been verified scientifically by pharmacological investigations. In the present study, ethnobotanical surveys were conducted in the remote tribal villages of Purulia district, West Bengal, India to explore the ethnic use of botanicals as anti-pyretic agents.

Earlier a few experiments have been conducted in these tribal inhabited district of West Bengal State. Ethnic use of medicinal plants in this area in child and mother care, livestock treatment and against snake bite have been reported. A few medicinal plants have been mentioned to possess anti-pyretic activity in these previous investigations. The present study exclusively includes traditional phytotherapy practiced by various tribal communities to reduce the body temperature. Mundas, Santhals are some of the different tribal population which is distributed in this district. The isolation from the main pool of the society is manifested by their general appearance of malnutrition and improper health care. They largely depend on plant resources growing at their surroundings to meet their health inputs. The tribal population of this rears a strong cultural heritage to enjoy their livelihood which is manifested with their different socio-cultural gatherings.

The rich traditional non-documented and verbal knowledge has been transmitted from generation after generation and this is being reflected in their lifestyles and behaviors they have a symbolic relationship with their natural abode. Tribal people are the repository of accumulated experience and knowledge of indigenous methods. But unfortunately the tribal knowledge of uses of plants is often kept secret and passes by word of mouth and by tradition from generation after generation.

Many plants that have important medicinal values are endangered by continuous use of tribal, human invaders and grazing animals. The present article is an attempt to deal with the ethno medicinal study and rich ITK (Indian Indigenous Knowledge) reared by the common simple tribal population.

One of the serious problems of the third world, particularly countries like India, is its geometrical increase in human population. This population explosion will have negative impact on our economic policies and would simultaneously disbalance our socio economic infrastructures. This would be manifested by unemployment, scarcity of food and shelter, problems of soil, water and air pollution. The only solution of this severe problem is to check or control of its own population. Birth control can reduce the population size.

Most modern forms of birth control are 70 to 90% effective depending on the method chosen. Though modern medicines for fertility control are mainly based on synthetic pills and other drugs, nobody denies the importance of folk medicine due to its age-old and time-tested efficacy. Besides this an oral herbal contraceptive would allow couples to control their fertility without consulting a health worker, which in turn would markedly increase the number of couples practicing family planning. Other advantages of such as contraceptive would include the familiarity of the rural people with herbal medicines. Modern medicine has provided several preventive and corrective methods of contraception, none of which is very safe and without any serious side effect. Many countries have already banned the use of normal contraceptives because of its carcinogenic effects. The discovery of some herbal contraceptive is the very need of the hour. Modern synthetic medicines for fertility control are also expensive. So search for harmless and inexpensive oral agents for fertility control in human beings to reduce the population size is appreciable. The tribal people and ethnic races through out the world have developed their own culture, customs, cults, religiousrites, taboos, totems, legend sandmyths, folk tales and song, foods, medicinal practices, etc. For example the food habits of Irulas tribes of Nilgiri district in India vary widely according to their cultural taboos and beliefs.

The Rigveda(4500B.C.-1600B.C.) has been mentioned 67 medicinal plants. But in the Atharvaveda(2000B.C.-1500B.C.)it has been mention about 290 plants used as charms for curing the diseases. Of the eighth division ofAyurveda(2500B.C.-900B.C.) Charak (1000B.C.) and Sushruta (800B.C.) mentioned about 700 plant species as therapeutic agents. Mesopotamia, Sumerian(300B.C.-1970B.C.), Babylonian and Assyrian(1970B.C.-539B.C.)civilization, several plant species were used as medicine.

Various salts, minerals, metal sand medicinal plants are the therapeutic agent in the Siddha system of medicine. Chopra (1933) listed 365 plants or plant parts as vegetable products commonly used in Ayurvedic,Unani and Siddha system of medicine. Almost the entire world has now recognized the value an importance of traditional medicinal plants that are employed in Ayurvedic and Unani system of Medicine of India.

In ancient times, many women practised birth control with little interference from religious or civil authorities. Herders of domesticated animals noticed that when animals grazed on certain plants, they failed to reproduce.Trialanderror were the next steps and then persons informed others about their experience. In time, plants were chosen on the basis of word-of-mouth information or traditional lore,which it was base doncumulative experience and reputation. The Greeks used Silphium, known commonly as giant fennel. Its pungent sap was good in cough syrups and gave food a rich, distinctive taste.

-:OBJECTIVE:-

The objective of these dissertation report- Traditional knowledge of medicinal plants and their uses in Purulia district: Review are –

- To find the procedure that how they used for physiological satisfaction.
- To provide more information about indigenous knowledge system.
- To create public awareness.
- To document the ethnobotanical data from existing literature.
- To describe basis, folk concept of vernacular names of plants.
- To record biotic variable of the area.
- To develop scientific approach among people towards their medico-religious belief.
- Unknown ethnobotanical uses of tribes bring into form of literature.
- To compare and evaluate ethnobotanical study.
- Conservation of cultural diversity and ecological diversity,
- Constant 'natural capital' and 'sustainable income',
- Anticipatory and precautionary policy approach to resource use , erring on the side of caution,
- Resource use manner that can contribute to equity and social justice while avoid social disruption,
- The limits of the natural resource within the capacity of the environment to supply renewable resources,
- Qualitative and quantitative development of human well-being,
- Pricing of natural values as natural resources to cover full environmental and social costs,

- Global rather than the regional and natural perspective of environmental issues'
- There is a steady decline in human expert is capable of recognizing various medicinal plants.
- Much of this wealth of knowledge is totally becoming lost as traditional culture gradually disappears(Hamilton,1995).
- Thus,there is now an urgency for ethnobotanical research among aboriginal peoples(Maheswari,1983).
- The District of Purulia, situate donot the Western border of the State of West Bengal,was chosen for the present ethnobotanical study because of its diversified flora, its occupancy by aboriginal tribal groups of anthropological significance, its tophography, its arid climatic condition and its cultural heritage.
- Inspite of rapid urbanization in certain parts of West Bengal during the present century, Purulia has remained rural and here, the change in indigenous culture has been slow.
- The tribals of the Purulia District are dependent on plants growing in their surrounding near by forest especially for their day-to-day needs as well as to cure various diseases.
- Ojha, Mukia ,Medicineman and Traditional healers in the different villages of this district have good knowledge on plants to cure various tribal ailments.
- They also use different plant parts for contraceptive and abortive purposes.
- They are an important source of information about paint sources of new drugs.
- Their hidden practical knowledge of antifertility plants may contribute for the development of new and potentanti fertility drugs.
- Though the present century is the day of synthethic pills and other moderm products, the primitive knowledge on plants occurring in wild is highly acknowledge by the global population.
- It is believed that after systematic scientific Scrutiny ,the data gathered from tribal people of Purulia District regarding antifertility purposes may provide interesting materials in the search for a safe and potent contraceptive.

-:MATERIALS AND METHODS:-

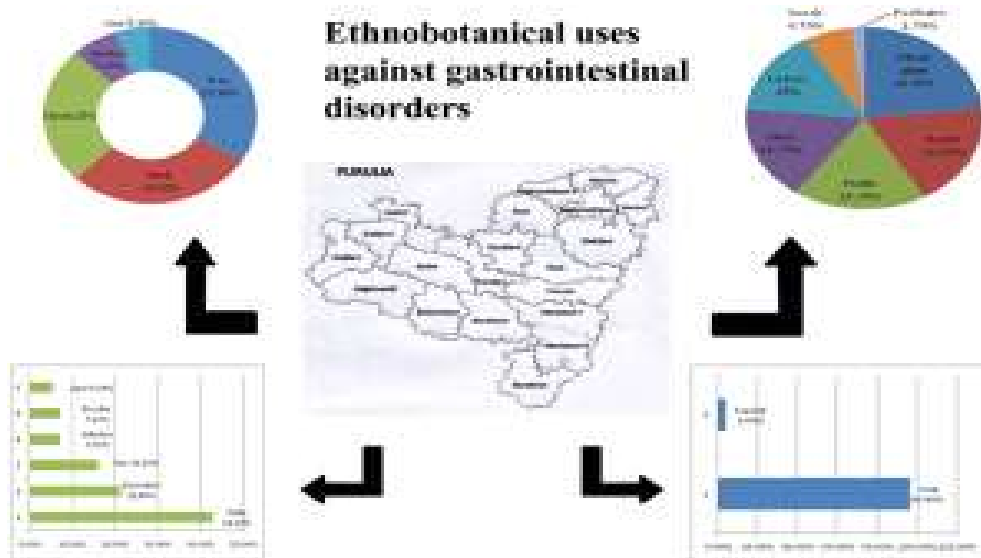
Purulia, one of the district of West Bengal is situated between 23° 11' 24"N and 86° 13' 12"E with an area of 6529sq.km. The district is known for its tropical location extreme climate and undulated topography. It is an extension of the Chota Nagpur Plateau and is inhabited by a number of tribal communities namely Santhali, Bhujijs, Mundas, Birhor, Kharia and representing a rich heritage of ethnic culture and practice. The temperature reaches up to 45°C during the Summer and falls down to as low as 7°C in the winter.

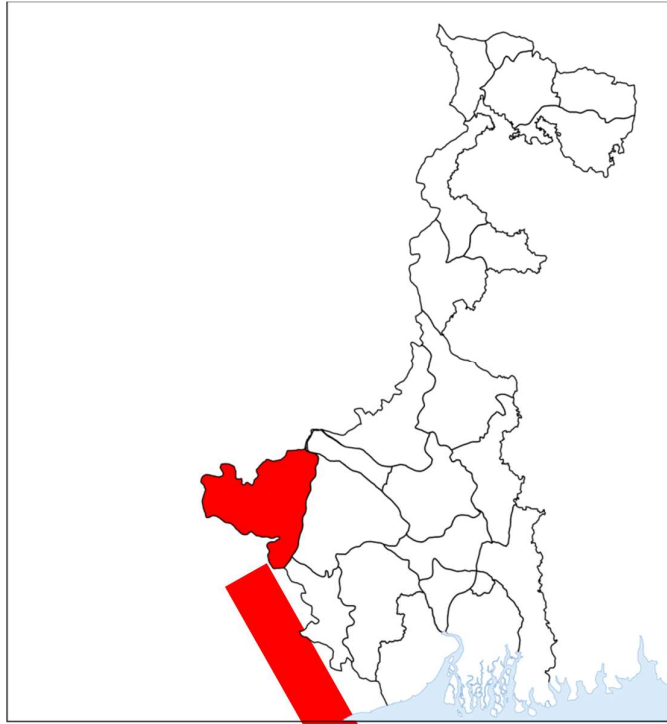
There are various opinions about the nomenclature of 'PURULIYA'. So, Puruliya is familiar in different names e.g., PURULIYA/PURULYA/PURUILA/PURLIYA/PURULHA excepting that, Michel Madhusudan Dutt (one of the renowned Poets of West Bengal) called it 'PURULYE'. Rail code of the district is 'Pit' and Postal code is PURU/PRI. The word 'PUR' is Dravidian .It means 'City'/'Habitation'/'Region'/'Country'. LIALAYA means 'New Habitation'. It seems that the term 'PURULIYA' comes from this idea. Again 'PURU'/'Poral' is a kind of vegetable and 'PARUL' is a kind of tree. Many people conceive that the origin of the name of 'PURULIYA' comes from these trees and plants. According to Dr. Sukumar Sen, the renowned Historian, in India, the very naming of 'PURULIYA' is from the trees and plants. After all, 'PURULIYA DISTRICT' owes its name to an ordinary village, which had gradually grown its importance and became the headquarters of the erst while ManbhumDistrictin1838 The name was retained even when Puruliya was separated from Bihar and joined to West Bengal in 1956. The word 'Puruliya' has been used in the text as 'Purulia'(Census of India,2001).

Tropic of cancer passes through the north. It marks the border area of West Bengal from the state of Jharkhand. Landscapes are like an isosceles triangle with a remote fragmented hillock zones it undulating topography. Dense scrub jungles are interspersed with dry deciduous vegetation. The altitude varies from 250-699m .Average rainfall is 1300mm. Due to adverse climate and topography, the tribals residing in the rural villages mostly depend on field and forest products for food, fuel and primary healthcare of human and livestock .

Different ethnic groups were found to practice and inherit their own traditional healing systems. Traditional knowledge of tribal people regarding medicinal plants used as febrifuge has been documented in an interview datasheet .Soil is porous, acidic, of gravels, sands and lateritic.

The climate is warm and humid with deciduous vegetation [Haines, 1925]. Mean relative humidity for the years 72%, tribals are more than 20% of the total population. The plants with anti-pyretic or febrifuge potential been documented with their scientific and local names, families and parts used.





-:RESULTS :-

The present investigation has reported the use of medicinal plant species belonging to 22 species of rural Purulia district. Among the plant parts use, roots have been the most popular followed by stem bark, leaves, whole plant, seeds and rhizomes traditional medicines were prepared in the forms of decoction, paste, infusion, powder or taken fresh. Oral root was reported as the only administration mode among the traditional healers in the treatment of fevers.



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LOCAL NAME	SCIENTIFIC NAME	FAMILY	USES	REFERENCE
BAT	<i>Ficus benghalensis</i>	Moraceae	Oral smell and bleeding gums.	Modak et al (2014)
SAL	<i>Shorea robusta</i>	Dipterocarpaceae	Coppice of the plant is used to prevent tooth ache, swelling and bleeding gums.	Modak et al (2014)
ARJUN	<i>Terminalia arjuna</i>	Combretaceae	Prevent oral smell , removes stain and makes teeth stronger.	Modak et al (2014)
NEEM	<i>Azadirachta indica</i>	Meliaceae	Makes teeth and gum stronger and healthier prevents dental carries, loosening of teeth and reduce intestinal problem.	Modaket et al (2014) and Sannigrahi (2014)
JAM	<i>Syzygium cumini</i>	Myrtaceae	Prevent bleeding gum andmake teeth stronger.	Modak et al (2014)
MOHUA	<i>Madhuca longifolia</i>	Sapotaceae	Helpful in treating bleeding gums and loosening of teeth	Modak et al(2014)
BABLA	<i>Accacia nilotica</i>	Mimosaceae	Bark is used against malaria and relief from dental pain.	Modak et al (2014) & Sannigrahi (2014)
KALMEGH	<i>Andrographis paniculata</i>	Acanthaceae	Crush leaf is given during malaria.	Sannigrahi et al (2014)

LOCAL NAME	SCIENTIFIC NAME	FAMILY	USES	REFERENCE
SATAMUL	Aaparagus racemosus	Liliaceae	Root feed in dysentery, stmachache and gonorrhoea.	Sannigrahi et al (2014)
SHIMUL	Bombax ceiba	Bobaceae	Root paste is used contraceptive.	Sannigrahi et al (2014)
PIYAL	Buchananis lanzan	Abcarduaceae	It is used to prevent urine infection and red urine disease.	Sannigrahi et al (2014)
PALAS	Butea monosperma	Fabaceae	Crushed bark and gum is used in treatment of malaria.	Sannigrahi et al (2014)
AKANDA	Calotropis gigantea	Asclepiadaceae	Root and leaves used to treat contraction and trembling in high fever.	Sannigrahi et al (2014)
DATURA	Datura mete	Solanaceae	Root paste is used to treat teeth carries.	Sannigrahi et al (2014)
LAL VARANDA	Jatropha gossypifera	Euphorbiaceae	Latex to treat tooth carries.	Sannigrahi et al (2014)

LOCAL NAME	SCIENTIFIC NAME	FAMILY	USES	REFERENCE
SAJNA	<i>Moringa oleifera</i>	Moringaceae	Stem bark is used as inflammatory.	Sannigrahi et al (2014)
ADI	<i>Zingiber officinalis</i>	Zingiberaceae	Rhizome is used to treat cough .	Sannigrahi et al (2014)
KARLARJUN	<i>Cleistanthus collinus</i>	Euphorbiaceae	Stem bark is used to treat skin disease.	Sannigrahi et al (2014)
OIL	<i>Amorphophallus paeoniifolius</i>	Araceae	Cooked dry stem feed in cholera and for constipation.	Sannigrahi et al (2014)
JIRUL	<i>Breynia retusa</i>	Euphorbiaceae	It is used to treatment of cough and pneumonia.	Sannigrahi et al (2014)
MANJUI	<i>Celastrus panniculatus</i>	Celastraceae	Root bark foe abortion.	Sannigrahi et al (2014)
KESHUTI	<i>Eclipta prostrata</i>	Asteraceae	Leaf juice to treat malaria.	Sannigrahi et al (2014)



Ficus benghalensis



Shorea robusta



Terminalia arjuna



Azadirachta indica



Syzygium cumini



Madhuca longifolia



Accacia nilotica



Andrographis paniculata



Asparagus racemosus



Bombyx ceiba



Buchanania lanzan



Butea monosperma



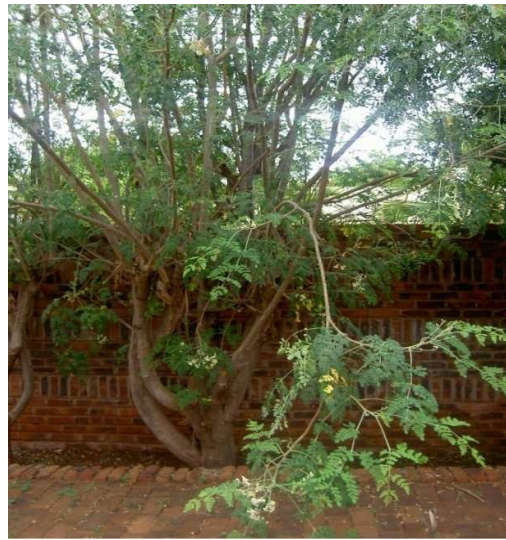
Calotrophis gigantea



Datura metel



Jatropha gossypifera



Moringa oleifera



Zingiber officinalis



Cleistanthus collinus



Amorphophallus paeoniifolius



Breytia retusa



Celastrus paniculatus



Eclipta prostrata

-: DISCUSSIONS:-

A good number of plants belonging to different families are used by a good number of tribal communities distributed in the different parts of the district starting from the altitude of 700 ft to plain region. Indigenous traditional knowledge as far as health & hygiene is concerned is very productive as well as urge of this millennium in the context of globalization, climate change and sustainable development.

But unfortunately, the precious and perennial non-documented traditional knowledge and its full potentiality have not yet been utilized in the light of modern art and science of medical sciences. Observation states that most of the aforesaid plants do not have any recorded toxic affect upon the users.

Not only the above plant species but also the unexplored knowledge have tremendous medicinal potentialities and may be the subject of utmost importance to explore the possible outcome of attributes to exhibit a ray of hope in general and for those diseases having no desirable remedies in particular.

This information may be used for adopting the proper healthcare measures by the policy makers and may convey an avenue to develop new type of drugs having the least toxic effects. There is an immediate urge of recording of all type of non-documented knowledge through the proper exploration and mining the precious and valuable attributes in this regard.

Due to the anthropogenic activities initiated by the so called global economic practices in the name of urbanization, industrialization and random & injudicious practices to enrich the market economy, the intangible biodiversity at verge of extinction. Side by side, the traditional knowledge is also at a stake. 'Better late than never.' A global human concern starting from the pocket of hamlets amidst the hill & hillocks can show the road to the destination. This review paper will attract the a total number of 22 plants species belonging to 20 Plant families are reported with their scientific name family and local name.

Certain botanicals used by these tribals as remedies for various diseases among the plant families, these are listed as follows:-

Plant species *Shorea robusta* is from the family of Dipterocarpaceae which is used to prevent from tooth ache swelling and bleeding gums . Plant *Cleistanthus collinus* is from the family of Euphorbiaceae is used for skin disease. Root paste of *Bombyx ceiba* from family Bombaceae is used to contraceptive. Treatment of gastro-intestinal, muscle pain, cough and fever is controlled by plant *Zingiber officinalis* from family Zingiberaceae. Plant *Ficus benghalensis* from the family of Rutaceae is used to prevent oral smell and bleeding gums. Oral smell and stain are treated by *Terminalia arjuna* which is from the family of Combretaceae. Dental carries, loosening teeth and intestinal diseases are prevented with the help of *Azadirachta indica*. *Syzygium cumini* from the family Myrtaceae prevent bleeding gums and make teeth stronger. *Madhuca longifolia* from the family Sapotaceae is used to treat bleeding gums, swelling of gum and loosening of teeth. Treatment of dental pain is controlled by bark of *Accacia nilotica* which belonging to the family Mimosaceae. Malaria is also prevent by bark of *Accacia nilotica* . Leaf of the plant *Andrographis paniculata* from the famiy of Acanthaceae is used to prevent malaria. Root paste of *Bombyx ceiba* is from the family Bombaceae used as contraceptive. Red urine disease and urine disease are controlled by the paste of root of the species *Buchanania lanzan* which belongs to the family of Anacardiaceae. Root paste of *Datura mete* L from the family Solanaceae used to treat tooth carries. *Jatropha gossypifolia* belongs to the family Euphorbiaceae used to latex to treat tooth carries. Stem bark of the species *Moringa oleifera* belongs to the family Moringaceae us used to anti-inflametary. Cholera is prevented by dry stem of *Amorphophallus paeoniifolius* belonging to the family Araceae. Cough and pneumonia is prevented by *Breynia retusa* belonging to the family Euphorbiaceae. Root bark of *Celastrus paniculatus* belonging to the family Celastraceae is used to abortion. Leaf juice of *Eclipta prostrata* belonging to the family Asteraceae is used in malaria.

-:CONCLUSION:-

From the above discussion, it is evident that a vast majority of plant parts are used for various medical alignments that tribal people of Purulia have made a good use of the knowledge which their ancestors have taught them. These herbal preparation are widely being used to due to their easy accessibility and availability and the cost of medicine preparation, can be enlightend with these age old method of herbal medicine preparation, so that these precious knowledge is not lost with time .

It can be studied for the research and much more method of herbal drug preparation for treating various disease. Different tribal communities residing in the area were found to possess traditional knowledge of using phytotherapy in the treatment of fevers. Proximate and metal content analysis of the seeds provides information that the consumption of the seeds of *Shorea robusta* is safe. This present study also provides preliminary data for the first time that the seeds of *Shorea robusta* possesses antiulcer activity in animal model.



The methanol extract of the leaves of *Andrographis paniculata* has an antimalarial potential that could be exploited for the benefit of mankind. Intraoperatively dexmedetomidine showed significant cardiovascular stability compared to clonidine. Also, Dexmedetomidine group showed significant drug sparing effect of Isoflurane, Thiopentone and Fentanyl than Control group. A clinical pharmacist can assist anaesthesiologist's in apt selection of drugs.

Eriodictyol contributed better phosphodiesterase inhibitory activity because of its structural parameters. Further investigations on the above compounds and in vivo studies are necessary to develop potential chemical entities for the prevention and treatment of inflammatory disorders. In house developed multi antigen and antibody assays have been observed to be quite useful as adjunct test in serodiagnosis of suspected cases of tuberculosis in particular extrapulmonary tuberculosis.

Research concluded that *Azadirachta indica* extract can be used as potent antioxidant which can play vital role against the diseases like Jaundice, Diabetis, Skin disease, and Cardiac disease. The results of present study suggest that an ethanolic extract of the root of *Buchanania lanzan* may possess for preventing red urine disease and urine infection. Present findings provide experimental evidence that the *Asparagus racemosus* is used to prevent dysentery, *stomachache and gonorrhoea*. These observations enabled to conclude that supplementation of antioxidants and phytosterols rich food exerts significant antihyperlipidemic and antitumor activity. The present investigation may be quite useful as this drug is highly valued as traditional system of medicine.

The isolated potent streptomycetes have degraded chitin and inhibited the clinical bacterial pathogens. In future in this strain will be used for waste shrimp and crab shells management and recycling and In this strain produce chitinase and antibacterial compounds have more medical application. So this strain has multi functional applications. The low percentage of positive samples does not necessarily reflect the true of autoantibodies but is simply due to over requesting of tests.

-:SUMMARY:-

Forest resources in India have been undergoing depletion at such a fast rate that efforts are launched on war-footing for their conservation, restoration and protection. Emphasis is presently given on utilization of the traditional knowledge, skill of indigenous people and scientific silvicultural methods for controlling the establishment, growth, composition, health and quality of forests to address issues of conservation and meet diverse needs and values. In such perspectives of conservation the sustainable economic use of the non-timber forest products (NTFP), i.e. "all goods or commodities of biological origin other than timber obtained from the forest that does not necessitate felling of trees" is of topmost importance.

Prior to National Forest Policy (NFP, 1988) the NTFPs used to be called Minor Forest Produce(MFP) . The forest dwellers consume for self sustenance a good number of such products with little or no value addition and also associate many of them with their livelihood and socio-cultural life. As such the importance of timber forest products (NTFP) is immense. The present work, new of its kind for the area, adheres to the objective of documenting from primary sources, i.e. the local Santhals, the traditional knowledge (TK) and its applications concerning various non-timber forest products available in their ambience.

Ethnobotany account for the study of relationship between people and plants for their use as medicines food and other household purposes. It is based on the natural and direct relationship of people and plants including both the fundamentals and cultural aspects. The ethnobotanical study was conducted at Purulia district. We also documented different types of traditional plants used by indigeneous people. A total of 22 medicinal plants belonging to 20 families used by the living in Purulia. Botanical name, families, Local names of the plants as well as purpose of use.

-:REFERENCE:-

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