EVALUATE THE TOXIC PLANT OF BALASORE DISTRICT

A PROJECT SUBMITTEDIN PARTIAL FULFILLMENT OF THE DEGREE OF BACHELOR OF SCIENCE IN BOTANY HONOURS

SUBMITTED BY-

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CERTIFICATE

This is to certify that the project report entitled “EVALUATE THE TOXIC PLANTS OF BALASORE DISTRICT” Submitted by “Sanjib Parida” for the award of the Degree of Bachelor of Science from Remuna Degree College, Remuna, Balasore Odisha,India, is a bonafied record of work carried out by him under my guidance. Neither this dissertation/project for any part of its has been submitted for any degree of academic award elsewhere.

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DECLARATION

I am Sanjib Parida bearing Roll number 5239B18031 and registration number 12797/18 do hereby certify that the thesis/project report entitled “EVALUATE THE TOXIC PLANT OF BALASORE DISTRICT” being submitted to Remuna Degree College,Remuna,Balasore,Odisha for the award of Bachelor OF Science is an original piece of work done by me and the same has not been submitted elsewhere for any other Academic degree of diploma of this college/university.

SANJIB PARIDA

SIGNATURE OF THE STUDENT

ACKNOWLEDGEMENT

We deem this to be a unique opportunity and proud privilege to record our profound sence of gratitude,ingenious regards and indebatedness to our respected guide and supervision Mrs Anjana Das Assitant Professor of the Department of Botany of Remuna Degree College,Remuna,Balasore for her guidance,constant supervision & ceaseless encouragement the period of investigation. Thank you very much Mam.

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ABSTRACT

A model survey was conducted in the Balasore to evaluate the eco-consciousness for poisonous plants grow in the house gardens. People have the opinion that house garden's are meant for ornamental, aesthetic, medicinal & pollution abatement. They responded the poisonous effect of plant as secondary importance to health. This page presents about ten poisonous plants of different families commonly grown in the courtyards of Balasore resident which are unknown to the people as poisonous.

CONTENT

CHAPTER-1

INTRODUCTION

The branch of Botany deals with various toxic plants and concerned with people's instructions is known as Ethno Toxicology. But for a common man the scope of ethno toxicology should be considered is much border form, as day by day the knowledge for recognition of toxic plants depletes among them. Either due to our modern educational system or lack of interest in plant identification and conservation, the consciousness for either useful or harmful plants has gone down and this is more so among the urban dwellers compared to the rural people. It may so happen that many times we come in contract with a poisonous or injurious plant, get adversely affected by it, but we are not conscious that the problem that the problem is due to the ornamental plant which we have kept in our own garden. These poisonous plants contain powerful toxic ingredients (phyto-chemicals) which if introduced into the body of any animal system, may be relatively smaller quantity, will affect deleteriously and may be fatal at times. The poisonous plant around us are not only the flowering plants, rather some of the cryptogams like algae, fungi, mushrooms, lichens, ferns are also poisonous. The followings plants from toxicological points of view can be divided into main groups:- (1) plants poisonous to man and livestock, (2) Plants poisonous to insects and fishes.

CHAPTER -2

HUMAN BEHAVIOUR WITH POISONOUS PLANTS:

Plants are indispensable in a biosphere and probably it is not necessary to explain their importance. Surely, Plants consciousness is ever considered from beneficial point of view and a wishful thinker prefers to assume that all plants are good. Some of plants hazards are follows:-

- Some plants release airborne pollen grains to fertilise the neighboring plants as well some plants require insects to transport their pollen grains for which they release chemical attractants and this produce agreeable and / or disagreeable odors, may causes respiratory irritations.
- Many plants give up chemicals (osmyls) which acts as insect's repellents and usually found to be respiratory irritants.
- The stinging hairs of some plants inject irritate materials on contact and more over many plants are armed with trichomes, spines and thorns which are obviously hazardous.
- Most of the foods and beverages, which are formally believed to be harmless, are found to be dangerous if taken in excess, frequently or over a

long period of time. These are the plants with high phenolic content.

- Certain group of plants are characterised by the presence of latex which may be toxic externally and / or internally.
- A few numbers of plants and plant parts are poisonous, taken as a food after careful detoxication, but the detoxication process is never perfect which cause health hazards.
- Many plants have toxic property throughout, while other have only in certain portion as seeds, barks or roots. Even if, certain popular fruits including apples, peaches, cherries, tropical sugar apples, the flesh or pulp are edible but, their seeds kernels are poisonous. Obviously, there is every possibility of ingestion of the poisonous plant part along with edible substances.

CHAPTER-3

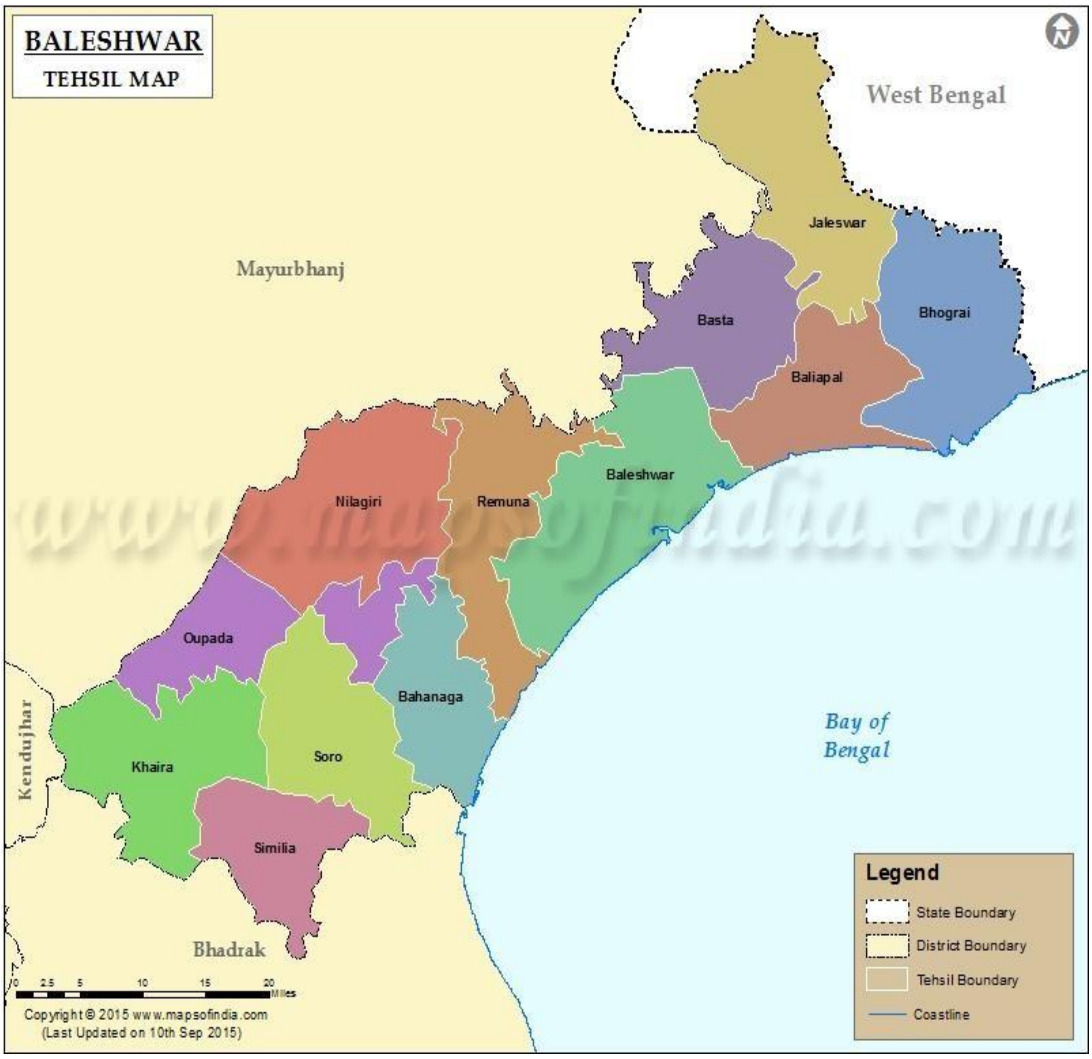
POISONOUS PLANTS IN OUR HOUSE GARDENS

House gardens are considered to be important agricultural or agro forestry system and sometimes sources of subsistence and cash resources for the house holders. The inherent interest in man for the surrounding biota makes the house garden a site for many uncommon species and varieties of plants. Most house owners and gardeners are not aware that some of our common, most beautiful plants contain highly poisonous substance. In this regards, a common city dweller is also poorly educated concern to the chemicals black ground of the plants around of him and there is little effort from Government or any other orgatisation to make people conscious about the poisonous but injurious plants around him.

CHAPTER-4

METHODOLOGY

The study area of Balasore:



Balasore or **Baleshwar** (ବାଲେଶ୍ୱର) is a city in the state of Odisha, about 194 kilometres (121 mi) north of the state capital Bhubaneswar and 152 kilometres (94 mi) from Kolkata, in eastern India. It is the largest city of northern Odisha and the administrative headquarters of Balasore district. It is best known for Chandipur beach. The Indian Ballistic Missile Defense Program's Integrated Test Range is located 18 km south of Balasore. With the creation of Bihar Province, Odisha, along with Balasore district, was transferred from Bengal to Bihar. But with the creation of Odisha as a separate state on 1 April 1936, Balasore became an integral part of Odisha State. The national movement of independence surged ahead with the visit of Mahatma Gandhi in 1921. Similarly Praja Andolan was initiated against the ruler of Nilagiri State. The state of Nilagiri merged with state of Odisha in January 1948 and became a part of Balasore district. On 3 April 1993, Bhadrak sub-division became a separate district and from this day Balasore remains a district of Odisha with two Sub-divisions namely Balasore and Nilagiri having eight Tehsils, namely Balasore, Soro, Simulia, Nilagiri, Jaleswar, Basta, Baliapal and Remuna and 12 blocks namely Bhograi, Jaleswar, Baliapal, Basta, Balasore, Remuna, Nilagiri, Oupada, Khaira, Soro and Bahanaga. The name of the district is being derived from the name of the town.

Balasore is where the famous freedom fighter Jatindranath Mukherjee, also known as Bagha Jatin, was injured and died fighting the British.

CHAPTER-5

REVIEW OF LITERTURE

The city is divided into 78 wards some of the wards are considered to be thickly populated while others are the new developing areas in the outskirts of the city. In the present study, minimum two house gardens are randomly sampled from each ward with a total of 80 study spots. Of course, house gardens with poorly developed and limited number of plants are avoided and emphasis is laid on courtyards which are enriched with vegetation. Some of the areas are exhaustive from botanical point of view such as the research and academic complexes are also avoided in this study. It is deemed that such centers are enriched with plantation for academic interest and less relevance to common man's interaction. With due permission from the owner of the courtyards the plants existing in the premises are surveyed. Concerned to this work, emphasis is given only on poisonous plants which were available in the courtyards of these house owners. The house owners and his family members are interviewed with questionnaires presented both in English and Oriya language. The questionnaire is divided into four phases.

Phase-I : Consciousness about plant in general

Phase-II: Consciousness about medical plant.

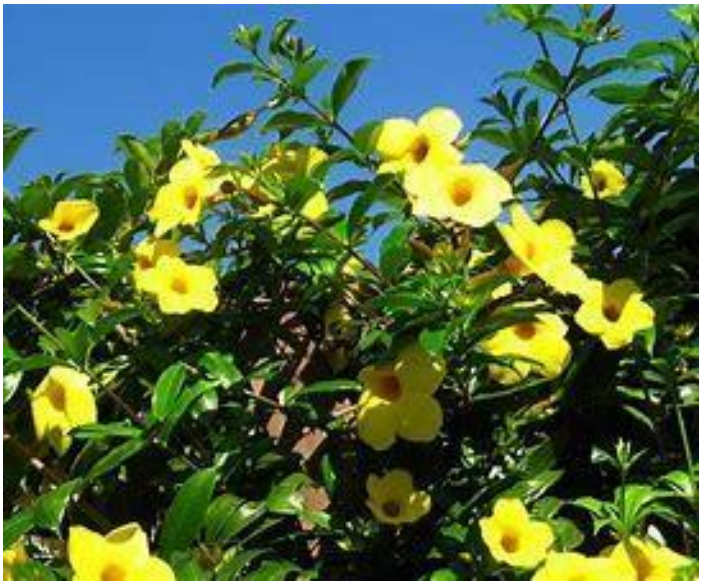
Phase-III: Consciousness about poisonous & injurious plant.

Phase-IV: Consciousness about ecology / pollution control.

The poisonous plant so recorded is analysed from

taxonomic and toxicity point of view from the available literature. The enumerations of the plants are presented alphabetically in the succeeding pages.

Allamanda cathartica



Family:-Apocynaceae, Local Name:- yellow Allamanda(English), katikee, Kaniaree (oriya)

A climb shrub with evergreen, elliptic leaves arranged in whorls of 3 or 4 spaced along the stems. Conspicuous and profuse bell shapes yellow flowers, 3 to 5 inch wide, present from spring to late fall and yellow Allamanda, one of the most popular ornamentals.

Toxicity:- All parts of the plants are reported poisonous. The milky sap can cause dermatitis on susceptible people. The plant's sap cause mild and occasional reactions such as oral irritation and slight nausea from prolonged sucking of cut stems, rash from wiping the sap on sensitive skin. The plant has been given bad reputation because of the drastic consequence of ingesting a quantity of the slap as a purgative.

Euphorbia tirucalli

Family:- Euphobiaceae, Local name:-pencil tree(English), Khadi Siju (Oriya)

Shurbs which grow up to 20 feet high with milky sap. Small green leaves , Inconspicuous at the end of branches and usually fall off new branches are formed. Flowers are small clusters. Sap flows freely from cut plant.

Toxicity:- The milky sap and all parts of the plants are toxic. The milky sap is very irritating to the skin and eyes. It is poisonous if it is internall.

Alocasia macrorrhiza

Family:- Araceae, Local Name :- Giant Elephant ear(English), Maana Saaru (Oriya)

Plants with more rounded leaf blades pointing upward and often blotched with white, common in house gardens, but nevertheless a source of injury.

Toxicity:- The sap and the rhizome are very acrid, enriched with raphides(Ca-oxalate crystals) along with unknown toxic ingredient. Causes itching rash from contact with the watery juice.

Diffenbachia maculate

Family:- Araceae Local Name:-Dumbcane (Eng)

Shrubs with green fleshy stems, grows up to 4 feet tail. Leaves on stalks up to 6 inches longs are variously moulted, spotted or streaked with white flowers –inconspicuous. Mostly a house plant and may planted outdoors.

Toxicity:- Leaves and stems contain poison which may cause intense irritation of mouth and throat with salivation, swelling of throat and temporary loss of speech.. If swallowed intense inflammation of stomach and intestines may occur.

Nerium oleander

Family:- Apocynaceae:- Local Name:- Oleander (English) Karibara (Sanskrit), Karabira(Oriya).

Shrubs grows up to 20 feet tall with heavy, green stems. Leaves are stiff and pointed in whorls of three and up to eight inches long. Single or double flowers may be red, white, yellow or pink. the blooms of three inches across .

Toxicity:- All parts are poisonous . People have been poisoned by using branches to skewer meat or stir food. Symptoms are nausea, vomiting, colic, or dizziness, drowsiness and deceased pulse rate. The poison may cause respiratory paralysis and death. Contact with plants can cause dermatitis. The smoke of burning oleander is also poisonous.

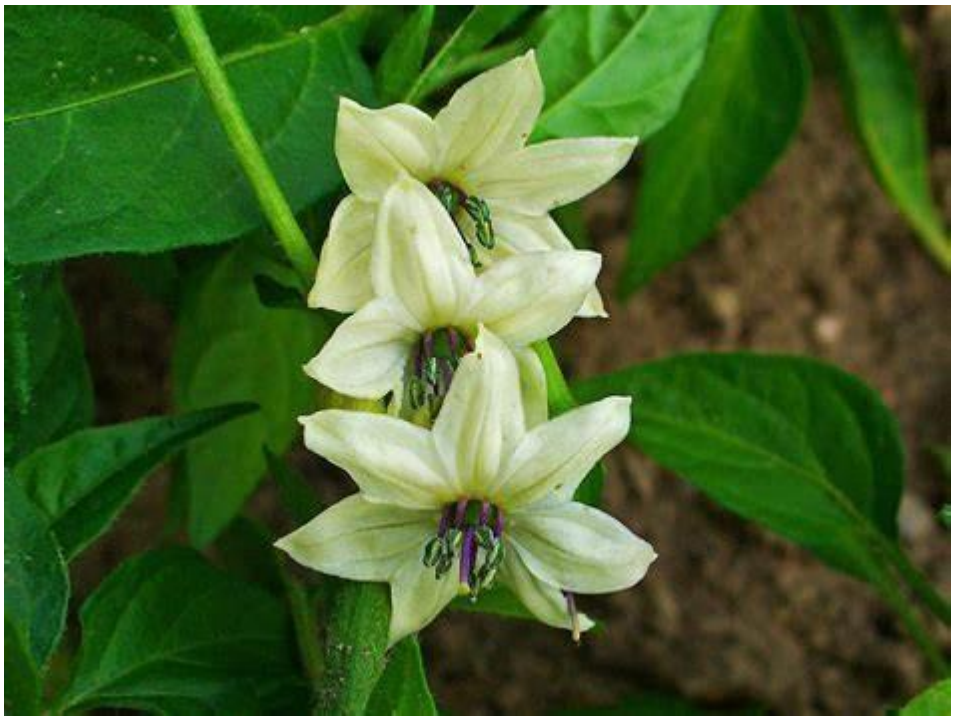
Melia azederach

Family:-Meliaceae, Local name:- Chinaberry(English), Mahaalimba (Oriya)

A spreading symmetrical tree with a dense crown, which grows upto 40 feet tail. It loses its leaves in cooler months. Leaves pinnate. Young leaves are toothed. Purplish flower fragment and produce yellow fruits with one seeds.

Toxicity:- All fruits, bark and flower are poisonous especially the fruit pulp. The poison attacks the central nerves system (CNS) and cause death by paralysis. Patient may becomes unconscious, pale, cold, and clammy and have symptoms of suffocation. Oil cause abortion, fruits extracts stimulates, CNS, causes convulsion, increases motor activity, contract internal smooth muscles, Leaf extract induces hypnosis , CNS depression, Cytotoxic to tumor cell.

Capsicum frutescence



Family:- Solanaceae, Local name :- Chilli Pepper(English), Kaashmiree miricha(Oriya)

Herbs, perennial shrub like upto 5 feet, leaves upto 4 inches long. Flowers, yellowish green 3/8 inches wide. fruits variable in form and size ranges from round or ovate to oblong and pointed yellow, orange or red, they may turn from green to purple, they yellow and finally red when ripe, seeds many, small and flat, flavor highly pungent.

Toxicity:- The active principle is capsaicin which is gastric and skin irritant.

Cestrum nocturnum

Family:- Solanaceae, Local name:- Hena(Oriya)

Sprawling shrubs grow upto 12 feet tall with glossy, ever green leaves approximately eight inch across. Greenish white flowers, tubular, fruits in front of small white berries.

Toxicity:- The far reaching fragrance of flowers can cause serve headache, nausea, depression, difficulty in bathing, dizziness, uneasiness and respiratory irritation of sensitive person. The fruits is said to be poisonous.

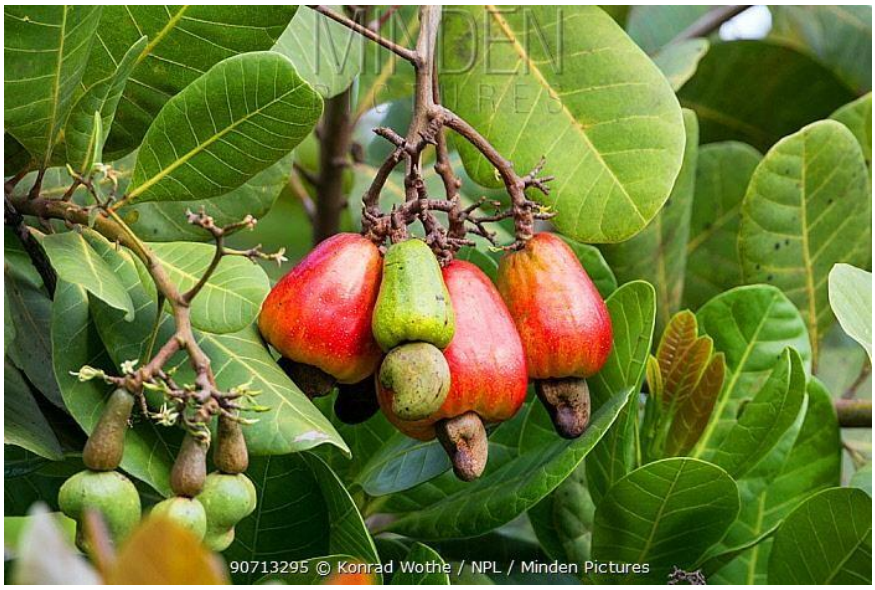
Aloe barbadensis

Family:- Liliaceae , Local name:- Ghreetakumari(Sanskrit), Gheen Kuaree (Oriya)

Plants herbaceous, xerophytes with succulent leaves. Leaves enriched with gelatinous substances, spinous. Spots presents on fleshy leaves.

Toxicity:- Most of the plants are poisonous if eaten. care should be taken that bulbs are never left when children have access to them. The rootstock of this family contain a strong purgative agent and some people may develop a skin rash from handl ling the roots or other parts of the plants.

Anacardium occidentale



Family:- Anacardiaceae, Local Name:- cashew nut (English), Kajju/ Lankaamba (Oriya)

Bushy Spreading trees to 35 feet to 40 feet in height and weight, with ever green, lathery leaves upto 8 inch long, small fragment, yellow-pink flowers in loose terminal spray. The conspicuous false fruit or 'Cashew apple' pear-shaped fleshy thalamus bearing true fruits (nuts) at tips.

Toxicity:- The fruits contains phenolic compounds cardol, anacardic acid and an ether should substance to which cantharidin-likes effect on oil an attributed. The juice from pericarp and trunk is very caustic and produce blisters. The nuts within which is the kernel must be roasted to get rid of poisonous substances. The fumes arising during roasting and irritating.

Moreover, the survey says that people are not ready for this. The principal hazard is not so much in the plants, but in people unfamiliarity with them which is a prevailing feature in the present context.

Mostly, the children are the victim to plant hazards as they are to unable the distinguish between dangerous and harmless ones to play with them. The cactus plants poisonous or not, are certainly significant for the possession of spines, as an ecological modifications in xerophytes habitat.

CHAPTER-6

RESULTS AND DISCUSSIONS

During the survey conducted in the courtyards of urban dwellers of Balasore, the followings poisonous plants are reported. These plants cannot be claimed as deadly poisonous but their direct and indirect adverse effect cannot be denied. The term poisonous plants specify the spices which cause allergies, skin irritation and contact dermatitis and few are most poisonous and fatal when take internally. The common dwellers are not aware that some of our common, most beautiful plants contain highly poisonous substance , which are preferred from aesthetic points of view and are cultivated because they can grow in places and conditions with less effort, where other plants cannot survive.

CHAPTER-7

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