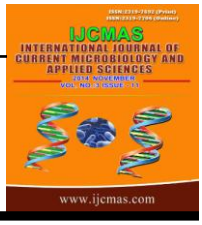
International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Volume 3 Number 11 (2014) pp. 957-963**
http://www.ijcmas.com



Original Research Article

A survey on Poisonous plants in Nilambur, Kerala, India

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A B S T R A C T

Since ancient times humanity has depended on the diversity of plant resources for food, shelter , clothing and traditional medicines to cure myriads of ailments. Plants add a touch of colour and fragrance to our daily lives. They also inject an element of anger in our lives. Plant cannot be move to escape their predators. So all plants have other means of protecting themselves from herbivores. Some plants have physical defenses such as thorns. But others contain some toxins. The toxic chemical substances include tannins, alkaloids, polyacetylenes, terpenes, phenolics, essential oils, etc. The present study aims to identify the common poisonous plants in Nilampur, Kerala,its morphological character of the selected poisonous plants and to study the poisonous effects of the selected poisonous plants.

Keywords

Poisonous plants; toxic chemical substances

Introduction

Since ancient times humanity has depended on the diversity of plant resources for food, shelter , clothing and traditional medicines to cure myriads of ailments. Plants add a touch of colour and fragrance to our daily lives. They also inject an element of anger in our lives. Plant cannot be move to escape their predators. So all the plants have other means of protecting themselves from the herbivores. Some plants have physical defenses such as thorns. But others contain some toxins. Plants have been identified as producing physiologically active substances in sufficient amounts to cause harmful effects in humans and livestock. The toxic chemical substances include tannins, alkaloids, polyacetylenes, terpenes, phenolics, essential oils, etc. The negative effects of these plants may range mild discomfort to death. Simply a poisonous plants is one that contains a chemical substance which produces a harmful reaction in the body of humans or animals, when taken in small or moderate amount.

An harmful reaction could include allergic reactions,dermatitis, skin irritation and internal poisoning.The potential ranger varies depending on dose. Some plants are capable of causing serious illness or death with a small amount of exposure .While others require large quantities to be consumed before even mild symptoms to occur. The toxicity may be mild toxic or highly toxic.

Poisonous from plants may occur from injection, inhalation and direct contact etc. symptoms from injection include gastro-enteritis, diarrhea, and vomiting, Nervous symptoms serious respiratory and cardiac distress. Poisoning by inhalation of pollen dust, fumes from burning plants can cause symptoms similar to asthma. Contact poisoning on skin or in the eyes can occur from direct contact with plant sap or hairs . It is impossible to predict how each plant need to be tested to cause harm because the strength of the toxin s may vary with the environmental conditions and person's response may be individualized. The timing of injection may be critical. The concentration of toxic constituents in plants can vary from year to year, that is throughout the growing season of the plant or as a result of environmental factors such as drought.

If someone has eaten a poisonous plant, the important thing to be followed is not to panic or be nervous. Drink some amount of water then try to identify the plant and obtain its part. Immediately consult a doctor.

The main objectives of this to identify the common poisonous plants Nilampur, Kerala. To study the morphological character of the selected poisonous plants. And also to study the poisonous effects of the selected poisonous plants.

Maibam Rasila Devi, Meenakshi Bawari, S.W.Paul and G.D.Sharma in 14 may 2012 are studied about toxic effects of *Datura stramonium*.This study was designed to document toxic properties of aqueous extract of *Datura stramonium* L. leaves (AEDSL) by investigating the neurobehavioral, biochemical and ultrastructural alterations using mice model.It make poisonous effect in a geophagous child(A case report Asma Bouziri,Asma Handi,Aida Borgi).

In May 1982 Joseph Arditti, Eloy Rodriguize are explained about *Dieffenbachia picta*. It is most toxic genus in the Araceae. Calcium oxalate crystals, a protein and a nitrogen-free compound have been implicated in the toxicity, but the available evidence is unclear. The plants have also been used as food, medicine, stimulants, and to inflict punishment. In 1981 Kuballa etal used *Diffenbechia picta* extract to induce cedema in rats.All parts of the plant have poisonous effect. Because it have Calcium oxalate crystal. In 1987 Mitchell, J.C.,Rook (Botanical dermatology). Greenglass Ltd, Vancouver, B.C., Canada.787.pp) were discovered that *Caladium bicolor* cause dermatitis; if the reactions are severe. The more obscure dermatologic plants are not included. For more information on plant-induced dermatitis. All the parts of the plant contain toxic substances, particularly calcium oxalate, which can cause reactions, even serious, if chewed and swallowed. In 2006 Onu and Madubaike reported the passinem effects of *Caladium bicolor*. All parts and sap are poisonous. And also Calcium oxalate crystal.

In 1957 Robertson, P.A., and Macfarlane, W.V are proved that its pain producing substances from the stinging bush of Laportea. In 1981 Schildknecht.H. was discovered that irritant and defence mechanism of higher plants.And also the plant, particularly the leaves is covered with minute, stinging hairs, which cause intense itching. The hairs resemble a hypodermic needle with a large bulbous base, exuding a poisonous substance when the tip is broken. Fruit is believed to be poisonous to horses.

In 2003 RK Goyal, J Singh, Harbans Lal(Pt. B. D. Sharma Post Graduate Institute of Medical Science, Rohtak, Haryana, India.) were proved that ; in Ayurveda, *Asparagus officinalis* has been described as absolutely

safe for long term use, even during pregnancy and lactation. Systemic administration of higher doses of all the extracts did not produce any abnormality in behaviour pattern of mice and rat. LD[50] of the product lactare has not been assessed since it did not produce mortality even upto the oral dosages of 64 gm/kg. In 2008 Huang XF ,Lin YY, Kong LY discovered that the presents of steroids from the roots of *Asparagus officinalis* and their cytotoxic activity.

Materials and Methods

Rain fall-6.0mm
Temperature-26 degree Celsius
Pressure-1011hPa
Visibility-6.0Km
Humidity-83%
Population-4,110,956

Collection and Identification of Plants

All plants under study were present in the Nilampur, Kerala. Five poisonous plants were identified under herb.

Study of Morphological character

Some of the identified poisonous plants were selected for study and each of their morphological characters such as habit, habitat, arrangement of leaves, inflorescence, flower characters, etc. were observed and recorded

Interview

For collecting information about the poisonous activities of the selected plants standard questionnaire method and personal interview was conducted with some experienced people and collected .Secondary data was collected from the journals.

Field Study

Field study was conducted during the study period

Results and Discussion

Observation

Field Study

The poisonous plants in that area were recorded. They are *Datura stramonium, Diffenbechia picta, Caladium bicolor, Laportea interrupta* and *Asparagus officinalis.*

Interview and reference method

Interview revealed most commonly non poisonous plants in the study area are *Datura stramonium, Diffenbechia picta, Caladium bicolor, Laportea interrupta* and *Asparagus officinalis.*

- ***Datura stramonium***

  Datura stramonium is a siny herbicious plant. The whole plant is glaberous in nature. The leaves are large and serrate. The flowers are pale yellow in color. That are solitary and pendulus, trumpet shaped and covered with fine hairs. The fruit also covered with spines.

- ***Diffenbechia picta***

  It is a herbaceous plant with sheathing leaf bases. The characteristics of this plant is the pattern of leaves. Such as the shape of the leaves are ovate. They may be whitish patterns in green or greenish patterns in white.

- ***Caladium bicolor***

Small perennial herbaceous plant with tuber rooted. It have large showy leaves. They are heart shaped. Also it is an ornamental plant.

- ***Laportea interrupta***

It is a herbaceous plant, erect and branched. It has green and succulent stem. The leaves are ovate. Margins are serrated. Hairs are scattered all over the plant body.

- ***Asparagus officinalis***

It is a perennial herbaceous plant with stout stem. It is a much branched feathery foliage. Leaves are intact needle like cladodes(modified stems) in the axils of scale leaves. Flowers are bell shaped.

Interview and Reference

The poisonous effects of selected plants details were collected by conducting interview with resource persons and from books

1. Datura stramonium
Common name-Ummum
Family-Solanaceae
Poisonous part-All parts
Toxicity principle-Tropane, alkaloids, atropine, scopolamine
Effects-abnormal thirst,vision,distortion,hallucination,hyperthermia and death.

2. Diffenbechia picta
Common name-Dumb cane
Family-Araceae
Poisonous part-all parts
Toxicity principle-Calcium oxalate crystal
Effects-Chewing on any part will cause intense pain on mouth and throat,excessive salivation,swelling of throat,throat inflammation,burning sensation, vomiting, dermatitis.

3. Caladium bicolor
Family-Araceae
Poisonous part-All parts and sap
Effects-Vomiting,diarrhea,temporary skin eczema,contact witheyes can cause temporary blindness.

4. Laportia interrupta
Family-Urticaceae
Poisonous part-Leaves and fruits
Toxicity principle-Stinging hairs
Effects-Skin irritation, swelling, inflammation, dermatitis, intense itching.

5. Asparagus officinalis
Family-Asparagaceae
Poisonous part-Red berries of Asparagus leaf.
Toxicity principle-Berries contain several furostanol ans spirostanol glycosides.

Effects-After the intake of larger amount of the ripe berries, people have been diagnosed with vomiting and abdominal pain. Also allergic reaction and inflammation of skin, eyes etc are seen.

There are many poisonous and allergic plants were found in Nilampur,Kerala. Some of them are highly poisonous and others cause minute allergic symptoms. Some of these plants can cause headache or simply kill you'(Springh 2007).All the five plants under the study are scientifically proved for their poisonous effects and some of them are commonly known as poisonous plant.The field study reveals that some of the plants are widly present in that locality as weeds and other plants are cultivated as ornamentals.

Datura the dimsons weed is present the locality was found to be also fatal to mankind .It product hallucination and many other serious symptoms right before heart steps.The level of poisoning is varies from part to part . Dumb cane is an ornamental

shrub but grown for its attractive leaves. The direct contact or its ingestion cause various symptoms. Range of symptoms including intense pain.it also very fatal to mankind.*Diffenbechia picta* has an unusually strong form of Calcium oxalate crystals. When it combane with other compound which make it very unpleasent and harmful. Most strong form of Calcium oxalate crystals were found in Dumb cane.Besides Calcium oxalate crystal raphides, present in Dumb cane leaves also poisonous to mankind.

Caladium bicolor or Jesus heart is an ornamental shrub but it is grown as an exotic weed inside our locality.All parts of the Caladium plant is plant is very poisonous particularly the sap.

The least poisonous or allergic plants are present in *Laportia interrupta.*This plant only produce some allergic symptoms causing death or very serious problem. This plant has stinging nettle more in both the sides of the leaves. Which has a large bulbous base area and it exudating a poisonous substance. When its tip is broken and these broken hair can cause contact Dermatitis.

Asparagus officinalis is a poisonous plant.Leaves are reduced to cladode such as small scaly leaves are present.Red berries present in Asparagus are making poisonous effects.It contain several furostanol and spirostanol glycosides. That make vomiting,abdominal pain,allergic reaction etc.

Not only this five plants are poisonous but also some other plants have poisonous effect. The plant like Aloe vera, Mimosa diplotricha, Landana camera, Mimosa pudica,etc., can cause allergic or poisonous symptoms

Among the above mentioned five plants under study some cause very dangerous to humanbeings. Most of them are fatal to mankind and some of the plants are grown for its medicinal properties. But it has other poisonous effect also.

Plate 1
Study area
Datura stramonium

Plate 2
Study area
Diffenbechia picta

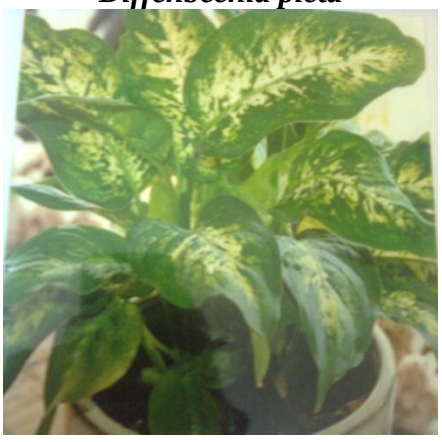

Plate 3
Study area
Caladium bicolor

Plate 4
Study area
Laportea interrupta

Plate 5
Study area
Asparagus officinalis

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