Journal of Biosphere, 2(1): 74-77, 2013 ISSN 2278 – 3342

Some new additions to the poisonous plant flora of the World

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Abstract: Poisonous plants comprise the third largest category of poisons known around world. The present study was conducted in the Udhampur district of Jammu and Kashmir to tap the local information regarding toxic plants present in the region. We found a total of 15 toxic plants viz. *Embelia robusta* Roxb., *Tulipa stellata* Hook. f., *Rhamnus triquetra* Wall. ex Roxb., *Prunus persica* (L.) Batsch., *Punica granatum* L., *Celtis australis* L., *Colebrookea oppositifolia* Smith, *Pupalia lappacea* (L.) Juss., *Ichnocarpus frutescens* (L.) R. Br., *Dodonaea viscosa* (L.) Jacq., *Diplocyclos palmatus* (L.) Jeffrey, *Opuntia vulgaris* Mill., *Euphorbia geniculata* Orteg., *Martynia annua* L. and *Sporobolus indicus* (L.) R. Br., which are not mentioned as poisonous plants in the world literature. This paper comprises the list of these fifteen species along with ailment caused, poisonous plant part and animals affected.

Key words: Ailment caused; animal affected; toxic plants.

1. Introduction

Poisonous plants comprise the third largest category of poisons known around world. They are the major cause of economic loss in livestock industry since the days of early settlement (Clarke and Clarke, 1977). According to Frohne and Pfander (1984), the poisonous nature of a plant or part thereof is due to the presence of some toxicologically significant plant constituent viz. alkaloids, amino acids, proteins, minerals etc. The concentration of these toxic substances varies from plant to plant. Sometimes the concentration of toxic substances is so low that it is considered a good fodder, but repeated and only use of the species may cause the toxicity.

In India, the studies on poisonous plants has been done by Chopra *et al.* (1949, 1956, 1984), Islam (1986, 1996), Desai (1999), Caius (2003), Kumar and Sikarwar (2003), Punjani (2003), Mahapatra (2006), Katewa *et al.* (2008), Jangid and Sharma (2011) on regional and national levels. Although, Kaul (1997) has reported some poisonous plants in his book on medicinal plants of Kashmir and Ladakh, no study has been conducted exclusively on the poisonous plants in the Jammu and Kashmir so far.

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Indigenous knowledge is a very important and inexhaustible information bank providing useful leads for general awareness and toxicological research (Huai and Xu, 2000). But, most of this knowledge only exists as a verbal tradition and only a fraction is yet available to science (Hedberg, 1987). Much of the knowledge amassed over millennia by tribals and passed on verbally over many generations, in many localities in India and elsewhere, is in danger of being lost forever (Schultes, 1991). It is facing the threat of rapid erosion because much of the knowledge resides with local healers (Hakims and Vaidyas) and elderly community members and disappears as they die. So, it is the paramount need of the hour to collect and systematically document this precious traditional knowledge for the benefit of all humanity before it is forever entombed with the cultures that gave birth to it (Schultes, 1991). Keeping this thing in mind, the present study was conducted in the Udhampur district of Jammu and Kashmir, to tap the ethnotoxic knowledge of the locals.

2. Material and methods

District Udhampur lies between 32°34´ and 39°30´ North latitude and 74°16´ and 75°38´ East longitude, and has a total area of 2380 sq. Km. The topography of the district is hilly, with an altitude ranging from 600 to 2900 m above mean sea level, inter–woven with the Shivalik range of the Himalayas, and has largely a difficult and rugged terrain.

To tap the traditional knowledge on poisonous plants of the study area a total of 183 local inhabitants, including 112 men and 71 women, were interviewed. The interviewed local inhabitants were *hakims* and *vaidyas*, *gujjars* and *bakkarwals* (nomads), veterinary personnel, livestock rearers, dairy owners, *ponywallas* (pony owners) and milkmen. The plant reported as poisonous by the informants was collected, dried and then pasted on the herbarium sheet. The identification of the plant

specimen was done from the herbariums of University of Jammu, Jammu and IIIM, Jammu. These specimens were finally deposited in the herbarium of University of Jammu vide sheet numbers from JUH 13978 to 14067.

A total of 15 poisonous plants were found that have never been reported as poisonous plants in India (Chopra *et al.* 1949, 1956, 1984; Islam 1986, 1996; Kaul 1997; Desai 1999; Caius 2003; Kumar and Sikarwar, 2003; Punjani 2003; Mahapatra 2006; Katewa *et al.* 2008; Jangid and Sharma 2011) or the World (Leewenberg 1987; Qureshi *et al*. 2001; Anon. 2003; Crosby 2004; Offord 2006; Agaie *et al.* 2007; Agra *et al*. 2007; Nelson *et al.* 2007; Botha and Penrith 2008; Wagstaff 2008; Allred 2010; Huai *et al.* 2010). Therefore these fifteen plant species have been reported as new addition to the list of poisonous plants of the world.

3. Taxonomic and poisonous characteristics of the plants

The list of the fifteen species along with ailment caused, poisonous plant part and animals affected is as under:

3.1 *Embelia robusta* Roxb., Family: Myrsinaceae, Local name: *Mairan*. JUH–14036

Ailment caused: Accidental consumption of newly sprouted leaves in large quantity particularly by migratory animals results in shivering followed by death within 2 days.

Poisonous plant part: Newly sprouted leaves

Animals affected: Cattle, sheep and goat.

3.2 *Tulipa stellata* Hook. f., Family: Liliaceae, Local name: *Kukar boona, Maghey*. JUH–14031

Ailment caused: Its intake adversely affects the brain of the animal resulting in high fever, shooting pain in stomach, abdominal cramps, violent tremors and twitchings of the muscles, vertigo and delirium.

Poisonous plant part: Whole plant

Animals affected: Cattle, sheep and goat.

3.3 *Rhamnus triquetra* Wall. ex Roxb., Family: Rhamnaceae, Local name: *Guldara*. JUH–14052

Ailment caused: Excessive consumption of fruits and leaves by livestock affects the brain resulting in loss of mental balance, hence, animal collides with whatsoever comes in its way. It also causes vomiting, nausea, fever, acute diarrhoea, weakness, shivering, impaired vision followed by stupor and irritation.

Poisonous plant part: Leaves and fruits

Animals affected: Cattle, sheep, goat and horse.

3.4 *Prunus persica* (L.) Batsch., Family: Rosaceae, Local name: *Aarn, Aaru*. JUH–14053

Ailment caused: Intake of newly sprouted leaves by animals affects the brain causing fits, convulsions, chocking of throat, sudden attack of abdominal pain, loss of consciousness and death within few hours.

Poisonous plant part: Newly sprouted leaves.

Animals affected: Cattle, sheep and goat.

3.5 *Punica granatum* L., Family: Punicaceae, Local name: *Darooni*. JUH–14047

Ailment caused: Intake of newly sprouted leaves by livestock causes nausea, vomiting, ulcers in mouth, dysphagia, diarrhoea, immense weakness, extremely high fever, blurred vision and death within one or two days.

Poisonous plant part: Newly sprouted leaves

Animals affected: Cattle, sheep and goat.

3.6 *Celtis australis* L., Family: Ulmaceae, Local name: *Kharak*. JUH– 14065

Ailment caused: If fed only on its leaves for a prolonged period, animal stops cuddling, becomes weak and body temperature rises.

Poisonous plant part: Leaves

Animals affected: Cattle, sheep, goat and horse.

3.7 *Colebrookea oppositifolia* Smith, Family: Lamiaceae, Local name: *Chitti Suhali*. 14028

Ailment caused: Contact causes itching in susceptible individuals. Animals fed solely on it show decreased milk yield.

Poisonous plant part: Leaves

Animals affected: Cattle and sheep.

3.8 *Pupalia lappacea* (L.) Juss., Family: Amaranthaceae, Local name: *Jojra*. 13979

Ailment caused: Consumption causes salivation, pain in throat and dysphagia.

Poisonous plant part: Whole plant

Animals affected: Cattle, sheep and goat.

3.9 *Ichnocarpus frutescens* (L.) R. Br., Family: Apocynaceae, Local name: *Keempaan*. JUH– 13982

Ailment caused: Ingestion causes vomiting, indigestion and gastrointestinal irritation.

Poisonous plant part: Leaves

Animals affected: Cattle and sheep

3.10 *Dodonaea viscosa* (L.) Jacq., Family: Sapindaceae, Local name: *Santha*. JUH–14054

Ailment caused: Consumption causes nausea, vomiting, shivering, eruptions full of pus on entire body and ultimately death.

Poisonous plant part: Leaves

Animals affected: Sheep and goat.

3.11 *Diplocyclos palmatus* (L.) Jeffrey, Family: Cucurbitaceae, Local name: *Shivlingi*. JUH–14009

Ailment caused: Intake by animals results in abdominal spasms and gastroenteritis.

Poisonous plant part: Fruits

Animals affected: Cattle

3.12 *Opuntia vulgaris* Mill., Family: Cactaceae, Local name: *Trappar sula*. JUH–13996

Ailment caused: Intake results in diarrhoea.

Poisonous plant part: Fruit

Animals affected: Cattle and sheep.

3.13 *Euphorbia geniculata* Orteg., Family: Euphorbiaceae, Local name: *Dudhi booty*. JUH–14011

Ailment caused: Livestock fed entirely on it for a prolonged period becomes weak followed by a reduction in its milk yield.

Poisonous plant part: Whole plant

Animals affected: Cattle

3.14 *Martynia annua* L., Family: Martyniaceae, Local name: *Phidoo*. JUH–14033

Ailment caused: Animals usually do not browse upon it except in times of scarcity. Excess consumption results in salivation, bloat and abdominal spasms.

Poisonous plant part: Leaves

Animals affected: Cattle and sheep

3.15 *Sporobolus indicus* (L.) R. Br., Family: Poaceae, Local name: *Girm*. JUH–14043

Ailment caused: Intake results in garmi, loss of appetite and reduction of fertility.

Poisonous plant part: Whole plant

Animals affected: Cattle and sheep

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