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SHORT COMMUNICATION

Tribulus terrestris L. (Gokshura): A medicinal herb near Mahanadi River area in Cuttack, Odisha, India

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Abstract

Tribulus terrestris is an annual medicinal herb belonging to the Zygophyllaceae family, commonly known as 'Gokhura' or puncture-vine. It has been used for a long time in both the Indian and Chinese systems of medicine for the treatment of various kinds of health problems. Its different parts contain a variety of phytoconstituents that are medicinally important, such as flavonoids, tannins, saponins, alkaloids, and phenolic compounds, which show numerous pharmacological activities. It is a straggling, spreading herb found all over the Mahanadi River area in Cuttack, Odisha. Urbanisation is also impacting near-river areas, and slowly the population is going to vanish. Therefore, we are presenting this medicinal herb here to create awareness among the locals, students, and researchers.

INTRODUCTION

Tribulus terrestris, is an annual plant of the family Zygophyllaceae mainly found in Mediterranean, subtropical, and desert climatic regions around the world, viz. India, China, USA, Spain, Bulgaria, and Mexico (Chhatre et al. 2014). It is a tap rooted perennial plant that grows as a summer annual in colder climates (Akram et al. 2011). This is a well-patronized annual herb by Ayurvedic seers as well as by modern herbalists (Duke et al. 2002), used individually as a single therapeutic agent or subordinate compound in many drug

formulations and food supplements. The main active phytoconstituents of this plant include flavonoids, alkaloids, saponins, amides, and glycosides (Shahid et al. 2016). It is used in a folk medicinal system (Amin et al. 2006) as a tonic, aphrodisiac, palliative, astringent, stomachic, antihypertensive, diuretic, lithotriptic, and urinary disinfectant (Kostova and Dinchev 2005). The dried fruit of the herb is very effective in most of the genitourinary tract disorders used to support proper functioning of the genitourinary tract and to remove the urinary stones. It is also used by athletes to increase muscle strength and improve performance in sports (Zhang et al. 2015). It has potential application as immunomodulatory, hepatoprotective, hypolipidemic, anthelmintic, anticarcinogenic activities (Shahid et al. 2016). It is a natural stimulant of Luteinizing hormone (LH) which signals the body to produce more of its own testosterone (Neychev et al. 2005). According to clinical studies, it improved reproductive functions, including increase concentration of hormones (Gauthaman 2002). With these valuable objectives, this study will help to create awareness about the pharmacological potent of *T. terrestris* along with its value-added utility, among the local people surroundings of Mahanadi River area in Cuttack district of Odisha. Authors studied its habit, habitat (Figure 1) and presenting here with photographs for easy identification in the field.

MORPHOLOGY

T. terrestris is a densely hairy prostrate herb having opposite, paripinnate leaves, about 5-7 cm long with 4-7 pairs of leaflets (Gupta 2017). The flowers are yellowish, solitary, pseudo-axillary, 7.5-15 mm across; peduncle 1-1.3 cm long. The sepals are usually lanceolate silky hairy and 5 petals are oblong-obovate, ca. 9 mm long (Adaikan et al. 2009). The disk annular is 10-lobed. The branches are approx. 30-50 cm long. The fruit is globose, ca.1 cm diameter, consisting of 5 hairy often muriculate, woody cocci each with 2 pairs of hard, sharp spines, one pair longer than the other (Dinchev et al. 2008). Its carpel fruits are of characteristic, stellate shape, somewhat round-shaped, compressed, five cornered, and covered with prickles of very light-yellow colour (Chhatre et al. 2014). Fruit often clings to clothes and bodies of animals. The nutlets or seeds are hard and bear several numbers in each coccus with transverse partitions between them, having sharp spines, 10mm long and 4-6 mm broad point-to-point (Saxena and Brahmam 1994; Figure 2).

RECOMMENDATIONS

Medicinal plants are the valuable sources of herbal drugs as well as new pharmaceuticals. The medicinal property is due to the presence of specific phytochemical compounds synthesized by the expression of specific genes under the influence of specific biotic and a-biotic stimuli and stresses prevail in the natural habitat. Any alteration in natural habitat may alter the metabolic pathway of synthesis of medicinally desired compounds consequently declining the medicinal value of the plant species. Therefore, the conservation of *T. terrestris* in their natural habitat for maintaining the medicinal efficacy is the best strategy. Thus, by introducing this appropriate knowledge to the locals of Mahanadi River area of Cuttack district, we are trying to create a strong awareness for its conservation.

Figure 1: Collection of flowers of *Tribulus terrestris* near Mahanadi River areas, Cuttack, Odisha, India for study

Figure 2: Vegetative parts of *T. terrestris*

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