



CALLIGONUM POLYGONIDES LINN (PHOG): AN IMPORTANT TRADITIONAL MEDICINAL SHRUB IN THAR DESERT

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ABSTRACT-

INTRODUCTION: Calligonum Polygonides Linn: It is an evergreen branched, glabrous xerophytic shrub of family 'Polygonaceae', locally known as *Phog*, a typical sand dune plant, found in whole of semi-arid and arid zone of Rajasthan & adjoining Thar Desert belt. It is rigid, much branched, leafless shrub. Unripe fruits of *C. Polygonides* have a vast **Nutritive Value** such as- protein, carbohydrate, sugar, fat, fiber, Vitamin B12, calcium, phosphorous and iron. **USES-** Medicinally, Flowers are used for the treatment of asthma, cough, cold, sun stroke, sore gums and in skin diseases; extract of the *Calligonum Polygonides* is used for the treatment of Typhoid and is applied in eyes to remove poisonous effect of *calotropis procera*. It is reported that plant possessed antioxidant & antifungal properties. The most beneficial role of this plant in desert region is as soil binder on sand dunes and to increase soil fertility. **DISCUSSION:** The possible ways of utilization of *Phog* are in terms of – Food value, Medicinal value, Fuel, Agricultural uses, live hedge, Social & Religious aspects, material for huts and for rehabilitation of degraded lands.

Key words: *Calligonum Polygonides*, *Phog*, Desert.

INTRODUCTION-

Medicinal plants or herbs, have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesize hundreds of chemical compounds for various functions, including defense and protection against insects, fungi, diseases and herbivorous mammals.ⁱ The importance of traditional plant identified which are used in traditional herbal medicinal system however, proper identification of these crude drugs in Botanical terms has not been carried out or still remains disputed as different authors ascribed different plants source to various crude drugs. More over several difficult diseases could be cured effectively by use of herbal medicine. Medicinal plants are distributed across diverse habitats and landscape.

DISTRIBUTION/ HABITAT-

It is a geographically cosmopolitan, distributed from the tropics to the arctic. It is distributed throughout the Southern Europe, North Africa, Western and Central Asia as main diversity center (Brandbyge, 1993). In Thar Desert, it is represented by one species i.e., *Calligonum polygonoides* L. (Shetty and Singh, 1991).ⁱⁱ The western part of Rajasthan is arid region of India. It grows on sand dunes as a psammophytic vegetation of Barmer, Bikaner, Churu, Jaisalmer, Jhunjhunu, Nagaur, Sikar and Shri Ganganagar (Shankarnarayan, 1988). This shrub is more predominant in the districts of Jaisalmer and Bikaner than elsewhere (Sen, 1985).ⁱⁱⁱ

FEATURES/CHARACTERISTICS-

Calligonum Polygonides Linn: is an evergreen branched, glabrous xerophytic shrub in habit but sometime old age plant look like a tree, locally known as “Phog” belongs to family Polygonaceae.

The Polygonaceae is known as Buckwheat, Smartweed or Knotweed family and of 55 genera and possibly over 1150 species, a typical sand dune plant, mostly distributed in temperate regions or desert region of Western Asia extending over the Southern Punjab and Western Rajasthan in India. It commonly grows on dry sandy soils. It is highly drought and frost resistant in its native habitat in the Rajasthan desert. It is the most common component of plant communities of Psammophytic scrub desert and grows on longitudinal transverse and parabolic dunes (Saxena and Singh, 1976).^{iv} It is very hardy and being capable of growing under adverse conditions of soil and moisture. It produces root suckers and is easily propagated by cutting and layering. Usually it is seen as a small glabrous, winter shedding, perennial shrub 4 feet to 6 feet high but occasionally may reach even 10 feet in height. It is a rigid, whitish, articulate and fragile much branched, leafless shrub. Its edible parts are flowers. The floral buds of this plant are picked during February and March and are cooked as vegetable and eaten with buttermilk. Seeds are usually eaten raw. Unripe fruits of C.P. have a vast **nutritive value** such as- protein, carbohydrate, sugar, fat, fiber, Vitamin B12, calcium, phosphorous and iron. Flower buds abort & drop off in substantial quantities in May which are collected. Flowering and fruiting is in April-May.

USES-

Medicinal uses-

The aqueous paste of plant acts as an antidote against the heavy dose of opium and poisonous effects of *Calotropis procera*. According to Katewa and Galav (2005), the plant extract is used in typhoid.^v Plant decoction is given to animals to cure urinary problems. Floral buds give cooling effect to the body and cure sun stroke (Singh *et al.*, 1996). To control sun stroke a dose of 50gm floral buds in 100gm curd is very effective (Kumar *et al.*, 2008).

According to Mohil (2013) flowers are very nutritious with high amount of proteins, bearing digestive and tonic properties, useful against asthma, cough and cold. Medicinally, it is used for treating eczema and juice of shoot is used for eyes as an antidote to scorpion sting (Yawer *et al.*, 2007; Kumar *et al.*, 2008; Bewal *et al.*, 2009; Singhi and Joshi, 2010).^{vi} The decoction of plant after boiling is used as gargle for the sore-gums by Bhil and Garasia (Bhandari, 1978; Singh and Pandey, 1998).

Other uses- Flowers of *Calligonum Polygonides* known as “*Phogalo*” in Rajasthani, are used to prepare *Rayata*. The most beneficial role of this plant in desert region is as soil binder on sand dunes of Western Rajasthan and to increase soil fertility. Mathur (1966) reported that the nutritive value of Phog (*Calligonum polygonoides*) with regards to proteins are favourable, comparable with that of the common roughages which is usually used by camel.^{vii}

It is reported that the existence of the differences in the nutrient level of soil under the canopy of *C. polygonoides* in comparison to the soil of open, uncanopied area and can be concluded that *C. polygonoides*, a dominant shrub species of Cholistan desert, act as biological agent to facilitate the enrichment of the nutrient poor sandy soil of Cholistan desert.^{viii}

The plant is largely consumed for fire-wood by the natives of the desert. According to Khan *et al.*, (2013), it is locally used Naswar preparation. The wood of the plant is used in building huts/shelter and scaffolding of wells and other structures. The branches are eaten by camel and goat frequently (Bhandari, 1978).^{ix} Branches of *C. polygonoides* are used in zinc purification. It is the common woody plant species of the desert region where inhabitants depend on it for energy and fodder supply. Its root and thick branching stems are used as fuel and tender green phyllodes (modified stems) form fodder for camels. It is becoming increasing rare due to the demand for its roots, which are used to make charcoal as well as overgrazing and sand mining (Tadevosyan, 2001). Its charcoal is used to melt iron.

CONCLUSION-

There are numerous applications of *phog* including food, medicine, fuel wood, agriculture, building materials for shelters, social and religious purposes, and the restoration of degraded areas. Thus, by the above mentioned utilities of *Calligonum polygonoides* Linn., this plant needs to be cultivated extensively in India's Thar Desert.

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