PHARMACOLOGICAL PROPERTIES OF CARDIOSPERMUM HALICACABUM L.: A REVIEW

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ABSTRACT

Cardiospermum halicacabum L. (C. halicacabum) plant is as old as human civilization. The common name of this plant is balloon wine/ love in puff/ heart pea. All over the world, it harvested in backyards for its medicinal and food value. Whole plant and seeds considered useful. Seeds is in black coloured with a white heart shaped spot. It contains polyesterols, saponins, alkanoids, small amount of long chain fatty acids. Polyesterols have anti redness effect. It shows similar effects to corticosteroid. Cortisone creams contains similar and the active substance in a mother tincture. This natural cream is effective in treating Eczema, burns, redness or rheumatic disease. They show anti-inflammatory, antifilarial, anti-parasitic, anti-diarrhoeal, anti-hyperglycemic, anticonvulsant, anticarcinogenic activities properties. C. halicacabum used in the treatment of dermatitis. Plant seeds are good for arthritis. They immensely used as analgesic, laxative, anti-phlogistic. The drug show vasodepresant activity which, is considered to be transient in nature. The extract of Balloon wine is a good herbal treatment of cancer. It effects in inhibiting the immuno-suppressive action of drugs.

Keywords: Cardiospermum halicacabum L., Balloon wine, Antibacterial, Antifungal, Ant parasitic, Antidiarrheal, Antipyretic

INTRODUCTION

The average height of C. halicacabum L. is about three metres and it is a shrub. It is mostly branched from the base. Plant uses tendrils to climb in the surrounding vegetation and for the support of themselves. The stems of this plant finds to scramble all over the ground. Based on commodities, C. halicacabum L. is eco-friendly and bio-friendly. C. halicacabum L. has been used for treatment of rheumatism, stiffness of limbs, snake bite, its root for nervous diseases, as a diaphoretic, diuretic, emetic, laxative, refrigerant, stomachic, and sudorific. Leaves and stalks used in the treatment of diarrhea, dysentery, and headache and as a poultice for swellings (Chopra et al., 1986). The herbal products are also formed which are useful like gels, creams. They grow in ever wet or in seasonal climates. Shoots used in health care and fodder needs. C. halicacabum is belong
to spindaceae family (Boonmars et al., 2005). The various plant parts used in traditional medicine system for treatment of anti-inflammatory (Sadigue et al. 1987), antibacterial (Escherichia coli, Klebsiella pneumoniae, Salmonella typhi, Shigella boydii, Xanthomonas oryzae pv. oryzae, Xanthomonas campenris pv. Sesami, Xanthomonas campestris pv. Malvacearum and Xanthomonas campestris pv. (Raman et al., 1998), antipyretic (GuribFakim and Sewaj 1992), analgesic (Dhar et al., 1968), anthelmintic (Gopalakrishnan et al. 1976).

PHYTOCHEMICAL CONSTITUENTS

Result of Phytochemical analysis indicated that C. halicacabum contain tannin, saponin, flavonoid, steroid, terpenoids, cardiac, dlycosides, alkaloids, anthraquinones (Annadurai et al., 2013).

THERAPEUTIC USES

C. halicacabum shows various medicinal properties such as antibacterial, antifungal, antiparasitic, antidiarrhoeal, anxiolytic, rubefacient, antipyretic, anti-inflammatory, anticonvulsant, and anticarcinogenic. Earache can be treated by using leaves juice as eardrop. It enhances hair growth. Leaves of C. halicacabum are used to treat scalp. The extract is a good herbal treatment for skin redness. It acts as modulators in reactions. This gives antipruritic properties. This plant does not forms hematoma hence, can be used for long term. It is effective in neurodermatitis like illness in chronic stages cardiac glycosides found in small quantities in the extracts (Deepan et al., 2012). It also inhibits the action of drugs. Hence, it acts as immunosuppressive. Various skin problem as well as eczema can also be treated by consuming leaves of this plant. Extract of roots are useful to cure hemorrhoids. Herbal tea can also be prepared.

MEDICINAL PROPERTIES AND USES

C. halicacabum works as diaphoretic, diuretic, emetic, laxative, refrigerant, stomachic and sudorific and has antibacterial, anti-diarrheal, antioxidant activities, suppresses TNF production, exhibits anticancer, vaso depressant effect, rheumatism, severe bronchitis, snakebite. Antiulcer, analgesic, antiparasitic, antimalarial, antifilarial, and antipyretic (Raman et al., 1998; Rao et al., 2006; Kumaran and Karunakaran, 2006; Babu and Krishnakumari, 2006; Sheeba and Asha, 2006; Gopalakrishnan et al., 1976; Asha and Pushpangadan, 1999).

ANTIBACTERIAL ACTIVITY

C. halicacabum extract shown antimicrobial activity against the pathogens viz. Escherichia Coli, Pseudomonas aeroginosa, and Streptococcus sp. (Gopal et al., 2014).

ANTIPYRETIC ACTIVITY

C. halicacabum exhibited antipyretic activity against yeast-induced pyrexia in rats (Asha and Ushpangadan, 1999).

ANTIFUNGAL ACTIVITY
The herbal extracts have shown inhibition against the fungi. Mahmud et al., 2009 reported that the extract of *C. halicacabum* L. shown antifungal activity against human pathogens (*Aspergillus niger*, *Candida albicans*), animal pathogens (*Microsporillum gypsiccus*, *Trichophyton mentagrophyte*) and plant pathogens (*Saccharomyces cerevisiae*, *Penicillium sp.*) (Shareef et al., 2012).

**ANTIOXIDANT ACTIVITY**

Methanol extract of *C. halicacabum* shown antioxidant potential *in vitro* systems. The extract of *C. halicacabum* indicates that it has good potential as a source for natural antioxidants. This prevent it from free radical-mediated oxidative damage (Joshi et al., 2017).

**ANTIDIABETIC ACTIVITY**

Antidiabetic effect of *C. halicacabum* ethanolic extract against streptozotocin-induced diabetic rats shown good activity. Many flavonoids present in the extract. These flavonoids reported as the antidiabetic principles. The leaf extract of *C. halicacabum* help to increase the activity of glucokinase and decrease the activity of glucose 6-phosphatase and fructose 1,6 phosphatase in the liver (Rajeswari and Sriidevi, 2014).

**ANTIARTHRITIC ACTIVITY**

A topical herbal gel formulated by *C. halicacabum* and *Vitex negundo*, which shown promising results for the treatment of arthritis (Rajasekaran et al., 2016).

**ANTICOVULSANT ACTIVITY**

Petroleum ether fraction of *C. halicacabum* shown anticovulsant activity against electroshock induced convulsions in rats (Vetrichelvan et al., 2000).

**ANTI-INFLAMMATORY ACTIVITY**

Ethanolic extract of possess good anti-inflammatory activity against mouse macrophage cell line RAW264.7 (Sheeba and Asha, 2009).

**ANTIPARASITIC ACTIVITY**

Extracts of *C. halicacabum* tested against third-stage larvae of *Strongyloides stercoralis*. Aqueous extract of *C. halicacabum* exerted more rapid effect on larval motility than that of the alcoholic extract (Boonmars et al., 2005).

**ANTICANCER ACTIVITY**

The presence of phytocompounds, the extract of *C. halicacabum* showed anticancer activity against the breast cancer cell lines MCF-7 (Sagadevan et al., 2013).

**NEUROPROTECTIVE ROLE**
Methanolic extract of *C. halicacabum* potentially improved memory. It also significantly decreased the whole brain acetyl cholinesterase activity. Dementia is a type of neuro disease in which progressive brain dysfunctions that leads to (Kukkar *et al.*, 2014).

**CONCLUSION**

*C. halicacabum* has enormous medicinal value, which, used to treat simple ailments to chronic diseases because of presence of their bioactive phytochemical constituents. It possess significant properties that support its role in medicinal field. It possesses anti-inflammatory, antidiarrheal, antiparasitic, antipyretic, antifilarial, anxiolytic, anticancer activity.

**REFERENCES**


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