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In vitro antioxidant studies of *Momordica cymbalaria*

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Momordica cymbalaria is a well known plant species since ancient times for use in the treatment of various ailments. Recently, it is well documented that this species found to have significant anti-diabetic activity. This investigation was aimed at assessing the hydro-alcoholic extracts of various parts such as aerial parts, fruits and roots for their antioxidant activity. Pharmacognosy studies, extraction, phytochemical analysis and *in vitro* antioxidant activity studies were carried out. The antioxidant activity studies were carried out by ferric ion reducing, ABTS free radical scavenging, nitric oxide scavenging and total antioxidant assays. Ferric ion reducing power of aerial parts extract was found to be higher compared to fruits and root extract. However, nitric oxide scavenging activity was found be higher for fruits extract followed by aerial parts and roots. The same trend was followed in the cases of ABTS radical scavenging activity and total antioxidant activity. IC_{50} value of ABTS radical scavenging activity of fruits extract was found to 13 µg/ml compared to the standard compound Ascorbic acid which has IC_{50} value of 4.3 µg/ml. The total antioxidant activity of fruits extract was found to be 95.27 mg equivalents of ascorbic acid per gram. These potential antioxidant activities of the extracts have far reaching implications in further exploring this species for further studies in this direction.

Key words : *Momordica cymbalaria*, Plant extracts, Antioxidant, Free radical scavenging

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INTRODUCTION

Momordica cymbalaria is one of the species of cucurbitaceae family. The synonyms are *Momordica tuberosa* Roxb. or *Luffa tuberosa* Roxb. The plant is a perennial climber available only during the monsoon season and is found in the south Indian states of Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Tamil Nadu. The plant is a climbing annual or perennial herb with slender, scandent, branched, striate stem. The plant is traditionally used for the treatment of diabetes mellitus and also as an antiovulatory agent.

Bharathi *et al*. (2011) have reported the study on somatic chromosome number and detailed Karyotype analysis of six Indian *Momordica* species which includes *M. cymbalaria* also. The Somatic chromosome number of *M. cymbalaria* was reported to be 2n=18 against its previous reports of 2n=16, 22. The karyotype analysis reveals that it was possible to distinguish chromosomes of *M. cymbalaria* from other *Momordica* species and also between monoecious and dioecious taxa of the genus.

A study on antiulcer activity of aqueous extracts of fruits of *Momordica cymbalaria* revealed that pretreatment with aqueous extract of *M. cymbalaria* fruits showed significant decrease in the total acidity and ulcer index and also showed improvements in all histopathological parameters in the *M. cymbalaria* treated group. It was also learnt that there is significant decrease in gastric lesion and NP-SH and gastric wall mucus concentration in the *M. Cymbalaria* treated group in ulcer induced rats (Bharathi *et al*., 2010).

Studies on chemical composition and utilization of the wild edible vegetable Athalakkai (*Momordica tuberose*) was shown that it has higher amounts of minerals such as calcium, potassium and sodium. Also it is rich in vitamin C than the bitter gourd (*Momordica charantia*) and also it is rich in high crude fiber (6.42g/100g) (Parvathi and Kumar, 2002).

Its versatile utility as a nutritious vegetable, folk medicine and functional food ingredient provoked us to compile a comprehensive review of this multipurpose fruit on the distribution, nutritional attributes and phytochemicals composition and its medicinal properties

M. cymbalaria fruits were considered as tonic, stomachic, stimulant, laxative and alterative. The fruit is useful