



Phytochemical screening of seed extracts of *Asclepias exaltata* Linn. (Poke milkweed)

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Abstract

Asclepias exaltata is an herbaceous, tall perennial milkweed that got its name for its milky sap that contains latex, alkaloids and other compounds and are frequently found on the edges of forests. It resembles the common milkweed *Asclepias syriaca* and has been known to hybridize with this species in areas where both exist in warm relationship. Like other medicinal plants poke milkweed have highest significance for its valuable secondary metabolites (tannins, glycosides and saponins). They are known since ancient times for its curative properties and have been utilised for the treatment of various ailments such as tumor, asthma, fever, diarrhoea, gonorrhoea and warts. Hence, the present study has therefore been carried out to investigate different phytochemicals present in seed of different solvent (ethanol, chloroform, petroleum ether) extracts by employing well diffusion techniques. The phytochemical screening of seeds revealed the presence of steroids, glycosides, phenols, tannins and saponins. This experimental analysis established a best support for the use of this plant in herbal medicine and a step ahead to open a new insight for its therapeutic efficacy.

Keywords: *Asclepias exaltata*, phytochemical screening

Introduction

Common milkweed (*Asclepias* sp.) is an invasive 'super species' that has invaded extensive areas in Europe, forming novel ecosystems. The milkweed plant can tolerate to almost any soil condition from swampy, moist to sandy, and arid. It is a perennial plant and hence, once planted, does not require replanting each season and does not require any fertilizers, making the plant sustainable. Successful commercialization of milkweed as a crop is dependent upon mechanized harvesting, handling, drying etc. However, the effects of common milkweed on native flora more generally are unknown. They are known since ancient times for its curative properties and have been utilized for the treatment of various ailments such as tumor, asthma, fever, homeostasis, inflammation, diarrhoea, and warts. It contained a wide range of chemical constituents including flavonols, flavonol

glycosides, amino acids, carbohydrates, triterpenes, cardenolides, and many other biological active compounds. The plant parts which lend themselves to possible commercial utilization are the seeds, with its high content of protein and oil, the latex with its rubber content and finally the long bast fibers of the stem tissue. Interest in the possibilities of this plant has been aroused from time to time especially from the standpoint of rubber production. One study has reported neutral effects of common milkweed on the native flora of sand dune grasslands in Hungary after the removal of invasive pine plantation This paper gives comprehensive information about the history of the milkweed plant and fibres and a step ahead to open a new insight for its therapeutic efficacy.

1.1 Taxonomic Classification (*Asclepias exaltata* Linn.)

Table 1

Kingdom:	Plantae
Division:	Magnoliophyta
Infradivision:	Angiospermae
Class:	Magnoliopsida
Order:	Gentianales
Family:	Asclepiadaceae
Genus:	<i>Asclepias</i>
Species:	<i>A. exaltata</i>

Part used: Whole plants, Roots, Seeds and Leaves

Vernacular names:

English: *Poke Milkweed*

Marathi: Halad Kunku

Hindi: Kakatundi, Raktapushpa

Assamese: Bhadoi-tita

Objective

The value of any plant depends upon the adaptation of its various parts to some useful application. The present study was planned to investigate the phytochemicals present in *Asclepias exaltata* Linn. As it is rich source of glycosides and is used in treatment of various ailments such as tumor, asthma, fever, diarrhoea and warts.

Experimental Methods

The seeds of *Asclepias exaltata* were collected from the well-grown healthy plants inhabiting the natural forests of Odisha-Chhattisgarh border with 19.3738° N, 82.0869° E. Shaded dried and powdered seeds were successively extracted with ethanol, petroleum and chloroform. The extracts were filtered and concentrated using vacuum distillation. Phytochemical analysis of petroleum ether, chloroform and ethanol extracts were carried out for the detection of active secondary metabolite or different constituents such as tannins, alkaloids, flavonoids, terpenoids, steroids, carbohydrates, proteins and saponins. The dried extracts obtained by soxhlet extraction were subjected to qualitative phytochemical screening for the identification of various classes of active chemical constituents using the method described by Harborne (1998).

Results and Discussion

Table 2: Phytochemical Screening of Seed Extracts of *Asclepias exaltata* Linn.

Chemical Tests	Ethyl Acetate Extract	Pet.Ether Extract
Carbohydrate		
Molisch Test	+	-
Fehling's Test	+	-
Benedict's Test	+	-
Alkaloids		
Dragendorff's Test	-	-
Mayer's Test	-	-
Hager's Test	-	-
Wagner's Test	-	-
Glycosides		
Borntrager's Test	+	+
Keller Killani Test	+	+
Proteins	+	+
Steroids		
L. Burchard Test	-	+
Amino Acid	+	+
Terpenoids	-	-

(+) = Present, (-) = Absent

Conclusion

Medicinal plants are used for discovering and screening of the phytochemical constituents, which are very helpful for the manufacture of new drugs. The secondary metabolites such as carbohydrates, glycosides, saponins, flavonoids, tannins were found to be distributed in the seeds of poke milkweed.

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