PHARMACOGNOSTIC PARAMETERS AND PHYTOCHEMICAL SCREENING OF CONVOLVULUS ARVENSIS LINN.

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ABSTRACT
In this study the aerial parts of Convolvulus arvensis Linn. (Convolvolaceae) were collected and identified. Various Pharmacognostic parameters needed for evaluation are performed, which might be helpful in herbal medicines in future. The phytochemical screening revealed the presence of Flavonoids, tannins, saponins, and glycosides with a very high content in alcohol extract. The concentration of the phytochemical constituents were evaluated. The result of this study validates the use of plant in ethnomedicine and could provide a lead in the isolation of activity guided phytoconstituents.

Keywords: Convolvulus arvensis, Pharmacognostic parameters, anti-angiogenesis

INTRODUCTION
Convolvulus is a genus of about 250 species of flowering plants1. Many of the species are problematic weeds, which can swamp other more valuable plants by climbing over them, but some are also deliberately grown for their attractive flowers. Convolvulus species are used as food plants by the larvae of some Lepidoptera species2. Previous preliminary studies have revealed that different members of the family of Convolvolaceae3 possess Cytotoxic effects against a number of tumor cells. C.arvensis is one of its species. Convolvulus arvensis Linn. also known as wild morning glory is a creeping weed widely distributed in Middle East. It is commonly known as European Bindweed4, bindweed, creeping jenny5 and devil’s guts. In India it is found growing widely in waste lands and known as ‘Hirankhudi’ in Hindi. The plant is herbaceous, dicotyledonous, persistent, annual or perennial vine of 2m in height of the morning-glory family (Convolvolaceae) which spreads by rhizome and seed. The leaf is ovate-oblong to lanceolate, 1.5 cm -5 cm long and 1-3 cm wide, with an acute or mucronate apex and hastate, saggitate and cordate base. Capsules are ovoid to subglobose, 5-8 mm and glabrous. Seeds are four or fewer obovate to broadly obovate in outline, (2.5)3.0-4.5 mm long, 2.0-3.0(3.5) mm wide, 2-3 mm thick, colour, dark brown to black, and have rough surfaces. The flowers have five fused petals forming a 2-2.5cm long funnel-like corolla. Filaments to 1 cm flattened and broad at base. Style white, glabrous 1cm long. Stigma 2-3 to 4cm long, white to pale yellow in colour. Ovary subtended by orange nectar ring. Ovary white, glabrous to pubescent, superior, 2mm long, 2-locular.Sepals 5, green and often with tiny brownish tip, glabrous, 4 mm long, and 2.1 mm broad. Traditionally the plant is used to treat skin ulcers, reducing wounds, rheumatic and painful joints, inflammation and swelling6. A purified water extract of leaves of bindweed is used to inhibit the growth of tumour cells, growth of blood vessels and enhance immune function7,8,9,10,11,12. Convolvulus arvensis is also used as antidandruff and for skin diseases13. Aerial parts of C.arvensis is used as anti-spasmodic, wound healing, laxative and antihaemorrhagic14, anti-angiogenic effect15,16,17,18,19,20. It was also described as a purgative and fever-reducer. Phytochemical studies on this plant had been limited to the detection of Saponins21, Flavonoids and caffeic acid22 alkaloids23 and lipids24 and δ-amino levulinic acid. Aerial parts indicated the presence of polyphenolic compounds25, alkanes, alkanols, α- amyrin, campesterol, stigmasterol and sitosterol. Field bindweed was found to contain the tropane alkaloids tropine, pseudotropine, and tropinine and the pyrrolidine alkaloids cuscohygrine26 and hygrine27.

MATERIALS & METHOD
Plant material
The aerial parts of the plant were collected from the waste land of Amritsar region in the month of October- November and authenticated by Dr. B.K. Kapahi, Taxonomist, Department of Botany, IIMM, Jammu. A voucher specimen was retained and deposited at the crude drug repository of the herbarium of IIMM Jammu. (Vide CDR accession No. 21583).

Preparation of plant extracts (aerial parts)
The Plant material was dried in shade and crushed to obtain coarse powder of aerial parts excluding flowers. The dried powdered material was initially defatted with pet ether (60-80 ) in Soxhlet apparatus for 48 hrs according to successive solvent extraction. The pet ether extract was dried and collected. The marc was air dried and successively exhausted with CHCl3 and alcohol each for 48 hrs. The extracts were filtered while hot and the solutions were concentrated using water bath and % age yield of the extracts were determined. The extracts were stored in different containers apparently labeled and kept in poly-thene bags before analysis. Preliminary Phytochemical screening was carried out by using standard procedures described by Kokate27 & Harborne28.

Chemicals & Instruments
Solvents: Viz Pet ether (60-80), Choloroform, Alcohol and instruments like Muffle Furnance, water bath and hot air oven and apparatus like crucibles and other common items of glassware were procured from Sanjay Biological, Amritsar, India.

Physico –Chemical analysis
Physico-chemical analysis i.e. % age ash values were performed according to official methods prescribed29 and the WHO guidelines on the quality control methods for medicinal plant materials30.
RESULTS & DISCUSSION

Physico-chemical studies

Ash values of the drug give an idea about the presence of inorganic matter and other impurities present along with the drug. The value of total ash, water soluble ash, acid insoluble ash are carried out (Table-1). Extractive values are preliminary useful form the determination of exhausted or adulterated drugs. The alcohol soluble, ether soluble, CHCl₃ extractive values have been tabulated (Table2). Preliminary Phytochemical Screening carried out on powdered aerial parts of *Convolvulus arvensis* indicate and presence of flavonoids, tannins, saponins, and glycosides, steroids, mucilage. (Table 3)

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<th>Parameter</th>
<th>Value (% w/w)</th>
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<tbody>
<tr>
<td>Total Ash</td>
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<tr>
<td>Acid insoluble ash</td>
<td>4.52</td>
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<td>Water soluble ash</td>
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<table>
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<tr>
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<td>Ether soluble</td>
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<tr>
<td>CHCl₃ soluble</td>
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<th>CHCl₃</th>
<th>Alcohol</th>
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</thead>
<tbody>
<tr>
<td>Alkaloids</td>
<td>-</td>
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<tr>
<td>Flavonoids</td>
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<td>Glycosides</td>
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<td>Tannins</td>
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<td>Saponins</td>
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<td>+</td>
<td>-</td>
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<tr>
<td>Mucilage</td>
<td>+</td>
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CONCLUSION

In conclusion, it is clear that weeds are not only waste plants but some weeds like *Convolvulus arvensis* also possess important medicinal profiles. The plant has been used in traditional medicine to treat a wide range of disease. Moreover it contains several therapeutically active constituents. So there is way ahead to isolate activity related phytoconstituents.

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