

Qualitative Assessment of Phytoconstituents from *Canavalia Gladiata* (Jacq). DC.

More K.C, Tayade, S. N, Manik S.R.

Department of Botany, Sant Gadge Baba Amravati University, Amravati, Maharashtra State, India.

Abstract

The present findings has been undertaken to explore the valuable information about relevant phytoconstituents from the leaves and seed extracts of *Canavalia gladiata* (L.) DC. The investigation revealed that the leaves extracted in ethanol and methanol has shown the presence of flavonoids, phenols. Saponins are present in petroleum ether and chloroform extracts. Leaves extracted with acetone shows presence of flavonoids, tannins, glycosides. Alkaloids. Seeds extract of *Canavalia gladiata* exhibited the presence of flavonoids, phenols, tannins and glycosides in ethanol and methanol extracts. However, the terpenoids were extracted in petroleum ether, chloroform and ethanol. Aqueous extracts have shown the presence of alkaloids, flavonoids, tannins and saponins, but glycosides, steroids and terpenoids could not be extracted in aqueous extract of seed

KEYWORDS: *Canavalia gladiata*, phytoconstituents, extract

Introduction:

The awareness about the biological activities of herbal medicines is increasing day by day owing to its cost effectiveness and lesser side effect. The medicinal plant species have been used all over the world for the treatment and prevention of various ailments. It is now very well understood that each and every part of the plants possesses one or the other natural constituent having an impact of medicinal values. The medicinal uniqueness of particular plant species or groups is inconsistence with the concept that combination of secondary products in a particular plant is taxonomically distinct. (Wink et al, 1999). These phyto-constituents of medicinal plant needs to correlated with their pharmacological activities in order to authenticate the therapeutic potential of the plant species (Prachayasitcal, 2008, Turker, Usta.2008).

Canavalia gladiata commonly called as sword bean belongs to the family fabaceae. In marathi it is called as Abhi, plants are annual, woody and climber, stem erect, branched, dark green, cylindrical and solid. Leaves are compound, trifoliolate, stipulate and pedicellate, pedicel long 2- 4.5 cm. Fruit is legume type, 10.5 cm highly flat 2.8 cm long and 5-10 seeds in legume.

Material and methods

Collection of plant material

The leaves and dry pods of *Canavaliagladiata* (Jacq.) DC.were collected from the field near power house Morshi road, Amravati, Maharashtra.

Identification of plant material

Identification of plant material was done with the help of standard floras; the flora of British India, Flora of Amravati District (Dhore, 2002).

Extraction of phytochemicals

10 gm of sample was filled in the thimble (made up of filter paper) and extracted successively with petroleum ether, chloroform, acetone, ethanol, methanol and water solvent in 175 ml for 18 hours using soxhlet apparatus

Qualitative phytochemical analysis

The preliminary phytochemical analysis were performed for all the extracts as per standard method (Harborne,1998; Peach and Tracy,1955;Tiwari et al, 2011). Alkaloids detected by Mayer's reagents and Wagner reagents test, phenols detected by ferric chloride and lead acetate test, terpenoids and steroids were detected by using Salkowski test, tannins were detected by gelatine and lead acetate test, flavonoids detected by alkaline and lead acetate test, glycoside were detected by using killer-killaniand sodium hydroxide test, saponin detection were performed by froth and foam test.

Observations

Qualitative Phytochemical Analysis of *Canavalia gladiata* (Jacq.). DC. Leaves

Phyto-Chemicals	Phytochemical Tests.	Solvents				
		Pet. Ether	Chloro-form	Acetone	Ethanol	Methanol
Alkaloids	Mayers reagents	-	-	-	-	-
	Wagnerreagent	-	-	-	-	-
Flavonoids	Alkaline reagent	-	-	++	+++	++
	Lead acetate	-	-	+	+++	++
Phenols	Ferric chloride	-	-	-	+++	++
	Lead acetate	-	-	-	+++	++
Tannins	Gelatin	-	-	+	++	+++
	Lead acetate	-	-	+	++	+++
Saponins	Froth	++	-	-	+	-
	Foam	+	+	+	+	-
Glycosides	Sod. hydroxide	-	-	+	++	+++
	Killer Killani	-	-	+	++	+++
Steriods	Salkowski	-	-	++	+	+
Terpenoids	Salkowski	-	-	+++	+	++

(++)= Highly present, (++) = moderately present, (+) =present, (-) =absent

Qualitative Phytochemical Analysis of *Canavalia gladiata* (Jacq.) DC.seeds.

Phyto-Chemicals	Phytochemical Tests.	Solvents				
		Pet. Ether	Chloro-form	Acetone	Ethanol	Methanol
Alkaloids	Mayers reagents	-	-	-	-	-
	Wagnerreagent	-	-	-	-	-
Flavonoids	Alkaline reagent	-	-	-	+++	+
	Lead acetate	-	-	-	++	++
Phenols	Ferric chloride	-	-	-	+	+++
	Lead acetate	-	-	+	+	++
Tannins	Gelatin	+	+	-	-	-
	Lead acetate	-	-	-	+	+++
Saponins	Froth	-	+	-	-	-
	Foam	-	+	-	-	-
Glycosides	Sod. hydroxide	-	-	-	+	+++
	Killer Killani	-	-	+	+	+++
Steriods	Salkowski	++	+	-	-	-
Terpenoids	Salkowski	++	+	-	+++	-

(++)=Highly present, (++) = moderately present,(+) = Present, (-) = absent

Results and discussion

The qualitative phytochemical analysis of leaves and seed extracts of *Canavalia gladiata* revealed that presence of different phytoconstituents and it was found to be variable in different solvents. Leaves extracted in ethanol and methanol has shown the presence of flavonoids, phenols, tannins but glycosides and alkaloids were not observed. Saponins are present in petroleum ether and chloroform extracts. Leaves extracted with acetone revealed the presence of flavonoids, tannins, glycosides. Alkaloids and saponins were present in aqueous extract. Seeds extract of *Canavalia gladiata* exhibited the presence of flavonoids, phenols, tannins and glycosides in ethanol and methanol extracts. However, the terpenoids were extracted in petroleum ether, chloroform and ethanol. Aqueous extracts have shown the presence of alkaloids, flavonoids, tannins and saponins.

Conclusion: The present investigation revealed that the *Canavalia gladiata* possesses significant source of valuable phytoconstituents with pharmaceutical importance.

References

- Agbor A.G., Ngogang Y.J. (2005). Toxicity of herbal preparations. Cam. J. Ethnobot.**1**: 23-28.
- Alam M.N., Bristi N.J., Rafiquzaman M. (2013). Review on in vivo and in vitro methods evaluation of antioxidant activity. Saudi Pharm J, **21**: 143-152.
- Ali M.A., Sayeed M.A., Nurul A. (2003). Antibacterial activity and cytotoxicity of three lectins purified from *Cassia fistula* Linn. Seeds. Journal of Medical Sciences (Pakistan).**3**(3):240-244.
- Dhore M. A., "Flora of Amravati District with reference to the distribution of tree species". Amravati University, Amravati (2002).
- Prachayasitcal S., Buraparuangsang P., Worachartcheewaw A., Isarankura-Na-Ayudhya C., Ruchirawat S., Prachayasittikal V. (2008). Antimicrobial and antioxidant activity of bioactive constituents from *Hydrophytum formicclarum* Jack. Molecules **13**: 904 – 921.
- Turker, A. U., Usta C. (2008): Biological screening of some Turkish medicinal plants for antimicrobial and toxicity studies. Nat Prod. **22**: 136-146.
- Wink D. A., Vodovotz Y, Grisham M. B., De Greff W, Cook J. C., Pacelli B. (1999). Antioxidant effect of nitric oxide. Methods Enzymol. **301**: 413-424