

## STEROLS AND SAPOGENIN FROM PLANT PARTS AND TISSUE CULTURE OF *SAPONARIA VACCARIA* LINN.

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(Accepted February 1993)

Steroids are the most important natural products which are either the precursors of many pharmaceutically active steroids including corticosteroids sex hormones and oral contraceptives or used in some of their preparations have attracted a great deal of research during last two decades.

**Key Words :** Sterol, sapogenin, tissue culture, *saponaria vaccaria*.

Considering the importance of metabolites plant parts and tissue of *Saponaria vaccaria* Linn have been studied for sterols and/or sapogenin contents.

So far no steroid has been reported from this plant except the presence of stigmasteryl (Jain *et al.*, 1977).

The present study deals with the qualitative and quantitative estimation of steroids of *S. vaccaria*. Each of the plant material (root, stem, leaf, flower & seed) obtained locally and unorganised callus tissue raised from seedlings, maintained on revised (Kaul and Staba 1968) Murashige and Skoog's (1962) medium was dried, powdered and defatted in Soxhlet apparatus in petroleum ether for 24 hour on a water bath. After filtration the residual mass was refluxed with 15% ethanolic HCl for 4 hour (Tomita *et al.*, 1970). The filtrates were then separately extracted with ethyl acetate. The ethyl acetate extract was filtered and concentrated to dryness in vacuo separately.

Each sample except that of seed when subject to co-chromatography confirmed three spots (Rf-0.60, 0.64 and 0.92) coinciding with those of  $\beta$ -sitosterol stigmasterol and lanosterol when developed in solvent system hexane, ethyl acetate 3:1. Only greenish black spot coinciding with standard reference sample of diosgenin in case of seed and tissue samples when developed in the solvent system hexane, acetone (8:2).

Crystals of each spot obtained from preparative thin layer chromatography were subjected to mp and

Table 1: Sterols from *in vivo* and *in vitro* static cultures of *Saponaria vaccaria* Linn.

Plant parts	$\beta$ -sitosterol mg/g.d.w.	Lanosterol mg/g.d.w.	Stigmasterol mg/g.d.w.	Total sterol content mg/g.d.w.	Diosgenin mg/g.d.w.
Root	0.039	0.038	0.017	0.094	-
Stem	0.026	0.041	0.028	0.095	-
Leaf	0.053	0.042	0.021	0.116	-
Flower	0.046	0.040	0.033	0.119	-
Seed	-	-	-	-	0.171
Tissue	0.011	0.012	0.007	0.030	0.136

IR spectral studies for further confirmation. Quantitative estimation of each of the sample was carried out and the amount present in each gram of dry material was calculated in dry weight basis (mg./g.d.w.). In the present study the amount of lanosterol and  $\beta$ -sitosterol was maximum in leaf (0.042 mg/g.d.w. respectively) whereas stigmasterol was maximum in flowers (0.033 mg/g.d.w.). Diosgenin was maximum in seeds (0.171 mg/g.d.w.) when compared with that found in tissue (0.136 mg/g.d.w.).

Financial assistance from U.G.C. is gratefully acknowledged.

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