Appendix

Synadenium grantii Hook.'f'

Plant description

Synadenium grantii Hook.'f' is a xerophytic shrub commonly grown as a hedge-plant along garden fences and fields. A member of the family Euphorbiaceae, this plant is characterized by thick green stems, bearing simple leaves which are green in colour when young as indicated in Fig (i), and pink or red at maturity. The flowers are small, reddish, inconspicuous and arranged into a cymose, axially branched inflorescence, termed as the cyathium, which is a distinguishing feature of this family.

Taxonomy (1, 2)

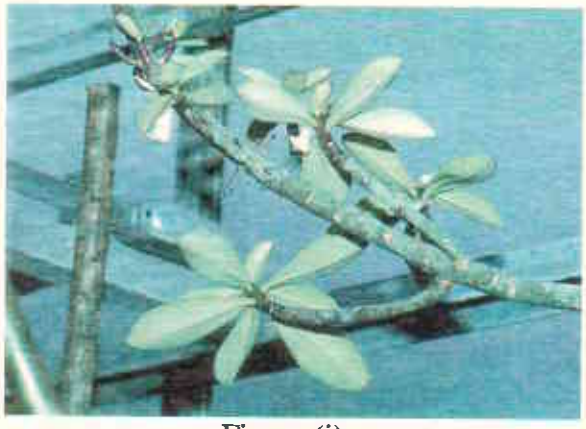

Figure (i)

Name of plant: *Synadenium grantii*. Hook. 'f'. Member of Family Euphorbiaceae.

Common name: African milkbush

Origin: Tropical Africa

Distribution: Cosmopolitan.

History: Introduced to India in the early 20th.century, where it was grown along fences as a barrier against grazing predators.

Habit: Succulent xerophytic shrub, about 6 m. in height, attaining the size of a small tree. (Fig ii). All aerial parts of the plant contain a highly toxic milky sap or latex, white in colour and free flowing.

Leaves simple, lamina ovate or obovate, fleshy, phyllotaxy alternate.

Figure (ii)

Floral characteristics

Inflorescence: Cyathium; cymose- axillary or terminal; dichotomously branched, (Fig. iii).

Flowers: Actinomorphic, unisexual, pentamerous, hypogynous.

Male flower

Perianth: 10 tepals, petaloid, fleshy, arranged in 2 whorls of 5 each, highly reduced, outer whorl forming a cup-like structure, with a red rim of glands, imbricate aestivation seen in bud.

Figure (iii)

Androecium: Stamens numerous, filaments united to form a central column, anthers dithecous, extrorse, versatile.

Female flower: present in the axils of two male flowers, complete absence of the accessory whorls seen; represented only by the sex organs, enclosed by involucre of bracts in the early stages of growth.

Perianth: Tepals absent.

Gynoecium: Tricarpellary, syncarpous, ovules in axile placentation, superior ovary, 3 styles, bifurcated, stigma simple.

Fruit: Three-chambered schizocarpic capsule, splitting into three one-sided cocci.

Seeds possess conspicuous caruncle.

Endosperm: fleshy

Embryo: straight.

The latex of *Synadenium grantii* has been reported to contain tigliane-type diterpene esters that are skin irritants (3). Chemically, the latex also contains sugars, n-alkanes (C_{14-19}), triterpenic ketones and tetracyclic triterphenols such as euphol, tirucallol and euphorbol,-in its unsaponifiable fraction. The saponifiable fraction comprises n-fatty acids ($C_{12 - 31}$), aromatic acids as benzoic acid, phenylacetic acid and ionol an antioxidant that is reported to act as a stabilizing agent. The latex of *S. grantii* also yields enormous quantities of the insoluble 'rubber' fraction (4).

Biochemical investigations reveal the presence of acetylcholineesterases (5) and carboxyl esterase (6). Lectins have also been reported from this genus (7, 8).

Clinical reports indicate that burns or blisters are produced on the skin, following contact with the latex of *Synadenium grantii.* Contact with the latex is also reported to cause injury to cattle, producing the characteristic symptoms such as redness and edema of the mucous membrane and eyes. The latex is also commonly used as an analgesic in Indian folk medicine (3).

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