Chapter I
CHAPTER - I

INTRODUCTION

The importance of chemical investigation of plants lies on the effective medicinal properties of a large number of plant species, evidenced by the rich heritage of herbal therapy, which can be traced to the remote past. With the advent of modern scientific techniques, researchers found their way to unravel the nature's treasure of phytochemicals of different plant species with potent medicinal values. As a result of this, numerous phytochemicals were isolated and characterised. Many of these chemicals were also identified as the active principles by testing on experimental animals. Yet, a good number of plant species with medicinal properties have been left hitherto uninvestigated. One of such plant is Meyna laxifora Robyns. syn. Vangueria spinosa Hook.

BOTANICAL ASPECTS :

Meyna laxifora Robyns. syn. Vangueria spinosa Hook. is a wild medicinal plant. It is found to grow wild on the road sides and forests throughout the state of Assam, India\(^1-5\). Besides, it was reported to be distributed in
North Bengal, Burma (Now-a-days, Myanmar) and south India. It is a large deciduous shrub, sometimes attaining a tree habit and belonging to Rubiaceae family. The trunk and branches of the plant are with opposite, straight (sometimes 3-nate) sharp spines 1.3-3.8 cm long. Leaves are 5-12.5 by 3.2-7 cm., opposite or 3-nately whorled, elliptic and oblong. Flowers are greenish white, in peduncled cymes from the old scars below the leaves. Fruits are smooth, globose, fleshy drupes with 2.5-4 cm. diameter. They are yellowish when ripe and edible. The fruit has 4-5 smooth, woody pyrenes. The bark is brown to deep grey with vertical cracks. Flowering time is April to May. Fruits take 3-5 months time to mature.

MEDICINAL ASPECTS:

The plant was described as Pindu and Pinditaka by Sanskrit writers and the fruit was described as strengthening, cooling and an expellent of phlegm and bile.

At Lakhimpur in Assam, the powered leaves are considered to be good for diphteria. The stem in combination with other drugs was recommended for the treatment of snake-bite and scorpio-sting, but it was not described as an antidote to either snake-venom or scorpio-venom. The seed is said to be used for abortion in early stage of pregnancy, although this report is to be considered with care. During the present study, information
gathered through verbal communication with the local users revealed the use of seeds as female antifertility agent. In many instances, it was said to cause permanent sterility if administered orally to young girls. In many places of Assam and Arunachal Pradesh, the decoction of leaves is used as an antidandruff shampoo as the leaves provide copious lather with water.

CHEMICAL ASPECTS:

No comprehensive report on chemical investigation on *M. laxiflora* is available so far, except one on an analysis of the fat from the seeds, which revealed the presence of palmitic, stearic, oleic and linoleic acid in the seed-fat.

The present study was undertaken to investigate the chemical constituents of the parts which are used as medicines in traditional system. As no report on chemical constituents of the plant was available to consider as a trace, so this study had to be undertaken with the following objectives.

(i) Preliminary screening of the alcoholic extract for different classes of compounds.

(ii) Review of the class of compounds, which is found to be present in considerable amount.
(iii) Isolation of the abundantly present chemical constituents from the plant, separation, purification and their characterisation.

Preliminary screening of the alcoholic extract of defatted seeds and leaves showed intense colour reaction with Liebermann-Burchard Test for triterpenoid saponins. The saponaceous nature of the plant material also suggests the presence of saponins. Again, many plants of the family Rubiaceae, including one very closely related species, viz. Xeromphis spinosa (Thunb) Keay syn. Gardenia spinosa Thunb. syn. Randia dumetorum (Retz.) Lam. were found to be rich in triterpenoid saponins. Extensive works have been done on X. spinosa which resulted in the isolation of a good number of triterpenoid saponins. Being a close relative to X. spinosa, M. laxiflora was also expected to contain triterpenoid saponins with a possible relationship with the medicinal properties of the plant, which can be a matter of further investigation.

To facilitate the course of investigation, a review was made on triterpenoid saponins covering their detection, isolation, structure elucidation and biological significance.

From the defatted seeds, seven triterpenoid saponins have been isolated, of which six have been found to be new and one known. Five triterpenoid saponins...
have been isolated from the defatted leaves, three of which were found to be common to that of the seeds. Others two were new. The petroleum ether extract of the leaves showed the presence of anthraquinones on thin layer chromatography. Attempts to isolate anthraquinones resulted in isolation of one new anthraquinone from the leaves.
REFERENCES:


5. CSIR, New Delhi (1986) *The Useful Plants of India*.


Drug Analysis: A Thing layer chromatography Atlas, 
94, Springer-Verlag.
PHOTOPLATE: I - A MATURE PLANT OF Meyna laxiflora

II - FRUITS OF THE PLANT