CHAPTER - 8

STUDIES ON THE ESTIMATION OF ALKALOID IN HAMEI

INTRODUCTION

Alkaloids occur chiefly in plants of the dicotyledonous families and are localised in seed, leaves, bark or root of the plant. Each site may contain several closely related alkaloids. Most of the alkaloids induce physiological responses when administered to man and animals. Thus the active principles of some of the oldest drugs and medicines known to man were alkaloids. This made the study of alkoloid particularly fascinating for thousands of years. By now over 2,500 alkaloids have been isolated, and their structures elucidated. The search for new and useful ones continues even today. Many of the alkaloids possess antibacterial activities and are usually representation of Fungi and bacteria.

The plant yangli Albizia myriophylla which is a constituent of Hamei seems to contain some sort of Alkaloids. It is useful for releaving certain painful spasmatic condition of muscles and in increasing irritation as in hysteria caugh etc. It gives an effect when consumed the bark. Even the extract gives a kick
effect and people in rural areas sometimes use the bark as well as the extract as a substitute of wine. But still today nobody has scientifically confirmed the presence of alkaloid in the yangli which is a constituent of Hamei.

MATERIALS AND METHOD

The samples were air dried in the shade and powdered. About 25 g. of the powdered material was extracted with 190 ml. ethanol in a shaker at 55°C for 20 hrs. with 2 changes of ethanol. About 10 ml of the ethanol extract was kept separately for testing flavanoid and the remaining portion of ethanol extract was evaporated to dryness and water bath. This residue was used for the estimation of Alkaloid, Saponin and Tannin test.

ALKALOIDS

A small portion of residue was dissolved in 5 ml. of 1% Hcl, filtered and tested with Dagandorff's reagent and Silicotungstic acid (12% aqueous) soln. Any precipitate or turbidity with reagents indicates the presence of Alkaloid. In order to rule out any possibility of false positive test, a confirmatory test for Alkaloid was performed. A small portion of the residue was dissolved in 5 ml. of 1% Hcl. filtered and
made distinctly alkaline with 28% ammonium hydroxide soln. and extracted with an equal volume of chloroform.

The chloroform solution was extracted with an any equal volume of 1% HCl which was separated and tested with Dragendorff's reagent and Silicotungstic acid. The presence of ppt. of turbidity confirmed the presence of Alkaloid.

PREPARATION OF DAGENDORFF'S REAGENT

2.6 g. Bismuth Carbonate and 7 g. Sodium iodide were boiled for a few min. with 25 ml. of glacial acetic acid and cooled at room temperature when crystals of sodium acetate are precipitated, the precipitate is filtered using a sintered glass funnel. Then 20 ml of the clear, red brown filtrate is mixed with 8 ml of ethyl acetate and stored in a brown bottle and used for the analysis.

ESTIMATION OF ALKALOID

The known quantity of powdered material was taken and put into the thimble of the Soxhlet apparatus for extraction with methanol for 14 hours. The extracting material treated with aqueous acid (HCl) till it dissolves and then filtered; the filtrate was made alkaline with 10% Na₂CO₃ or NaOH soln. the alkaline soln. was mixed with
equal amount of diethyl ether. The mixture was placed in a separating funnel and vigorously shaken and allowed to settle. The lower layer is drained out. The upper layer contains dissolved alkaloid. This was placed in a beaker and the diethyl ether was allowed to evaporate. The alkaloid was left as residue and weighed after it was dried at room temperature. The final weight which was obtained after drying is the amount of alkaloid in gm.

RESULT AND DISCUSSION

Weight of the sample before extraction with methanol in the thimble = 25 gm. Weight of the residue left after the experiment which was dried at room temperature = 1.5 g. Therefore the amount of alkaloid present in 25 gm. of the sample = 1.5 g.

The amount of alkaloid in per gm. of the sample = 0.06 gm.

<table>
<thead>
<tr>
<th>Initial weight of the sample</th>
<th>Weight of the alkaloid residue after the experiment</th>
<th>Amount of alkaloid present in 25 gm. of the sample</th>
<th>Amount of alkaloid in per gram of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 gm.</td>
<td>1.5 gm.</td>
<td>1.5 gm.</td>
<td>0.06 gm.</td>
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The result shows the presence of large quantity of alkaloid in Hamei. However the identification of the specific alkaloid could not be made, further investigation is suggested.