

### Discussion

By comparison of the alkaloid contents of Datura metel L. it showed that the alkaloid content of the flowers are highest, those of leaves, roots, seeds are lower, and of stem are lowest.

Owing to highest yield of alkaloids the flowers of Datura metel L. were tried. But a fair amount of sugar and plant pigments interfered the separation and isolation very much that only hyoscyamine and scopolamine were detected.

To avoid such interference, the leaves were selected. Making use of the partition column chromatography for separation of the alkaloids from Datura metel L. leaves according to Evans's method<sup>54</sup>. It was due to the following reasons.

(1) Kieselguhr or hyflo super cel has very low adsorptive power to tropane alkaloids, and very poor separation were found.

Besides kieselguhr and hyflo super cel, there are many adsorbents. Alumina and silica gel are among others.

Owing to the high adsorptive power of alumina alkaloid will be adsorbed firmly and hardly be eluted.

Silica gel has <sup>less</sup> adsorptive power than alumina, but the isolation of pure alkaloids by using silica gel column chromatography cannot be made, because the separating band of alkaloids was not sharp enough for further purification.

(2) Markedly raise of the temperature after changing of solvents gave rise to solvents bubbles and the column always cracked.

Isolation of alkaloids by the aids of preparative layer chromatographic technique using silica gel G as an adsorbent, and a solvent system of 5% diethyl ether in methanol yielded good separation.

By using preparative layer chromatography, alkaloids were separated markedly and isolated. There were scopolamine, hyoscyamine, a mixture of two unidentified alkaloids and unidentified substance(s). The latter gave colourless needle-shaped crystals, m.p. 257°C. Owing to very tiny amount of the unidentified alkaloids further investigation could not be possible.

The isolation of tropane alkaloids from the tuber of Dioscorea hispida Dennst. was done. By forming derivatives such as picrate, hydrobromide, hydrochloride, it is proved that the tuber of Dioscorea hispida Dennst. contains dioscorine as a main alkaloid and a trace of another alkaloid. These alkaloids spots are far apart i.e.  $R_F$  values of 0.92 (dioscorine) and 0.09 (another alkaloid). (see Fig. 15 page 117).