

THE NATURE OF CORPAVERINE

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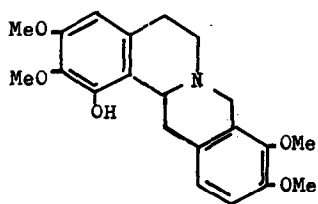
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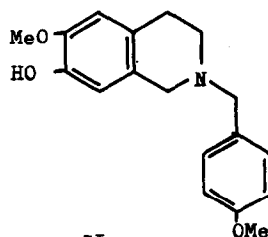
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In the previous papers (1,2) it has been reported that corpa-
verine consisted of two components, (-)-capaurine (I) and senda-
verine (II).



I



II

The purpose of the present investigation was to study the re-
lation between (-)-capaurine and sendaverine, eventually showing
that corpaeverine is a molecular compound (1:1) of both substances
as shown by thermal analysis.

A mixture (ca. 10 mg.) of (-)-capaurine, m.p. 162°, and
sendaverine, m.p. 134.5 - 135.5° (3), was used for thermal analysis

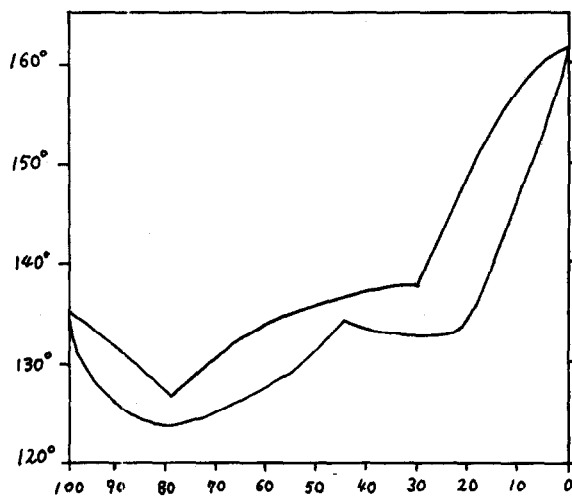
of two components system. Sintering and melting points were determined in a sulphuric acid-bath (Table 1). The samples were prepared as follows. After both specimens had been dissolved a small amount of chloroform, the solvent was distilled, and the resultant residue was dried at 40° for 24 hr. under reduced pressure.

Table 1

Sendaverine %												
100	85.5	80	73	68	66	60	50	45	43	30	22	10
Sintering point												
134.5°	123°	124°	126°	125°	127°	127°	134°	134°	134°	133°	133°	147°
Melting point												
135.5°	129°	127°	130°	132°	133°	132°	133°	136.5°	136°	138°	144°	158°

The first transition level was observed at 123 - 124° and second one at 133°. Three melting point curves intersect with each other at one eutectic point and one transition point. The intersection of the two sintering point curves occurs in the position which corresponds to a molar equivalent (1:1) of (-)-capaurine and sendaverine as is shown in Fig. 1. Furthermore recrystallization of a mixture (1:1) of (I) and (II) from methanol afforded corpaverine as colourless needles, m.p. 136 - 138° (The optical rotation of corpaverine agrees satisfactorily with that of the calculated value determined as follows;

Fig. 1. ← Sendaverine % against (-)-capaurine



$$\text{Molecular ratio} = \frac{\text{capaurine}}{\text{sendaverine}} = \frac{371.42}{299.36} = \frac{1}{0.806}$$

$$\text{Calculated } [\alpha]_D \text{ of corpaverine} = -271^\circ \times \frac{1}{1 + 0.806} + 0^\circ$$

$$= -150.1^\circ \text{ * } [\text{Found: } [\alpha]_D^{20} -154.2^\circ (\text{CHCl}_3) (4)]$$

These facts show that corpaverine is a molecular compound of (-)-capaurine and sendaverine, reminiscent of the somewhat analogous tetrahydroshobakunine (5).

* (-)-capaurine: $[\alpha]_D^{24} -271^\circ (\text{CHCl}_3) (6)$.

REFERENCES

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3. This melting point was determined in a sulphuric acid-bath and uncorrected. When this sample was measured on a hot-stage apparatus, it melted at 139 - 140°.
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