

A NOTE ON THE ALKALOID IN *ECLIPTA ALBA* (HASSK)

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Dymock and his co-workers (*Pharmacographia Indica*, Vol. II., p. 268) mention that "an alkaloidal principle was detected in *Eclipta alba* which we failed to obtain in a crystalline form. It afforded no special colour reactions. The sulphate was slightly soluble in ether." The investigation of the present workers confirms the existence of an alkaloid in the plant. This alkaloid is volatile with steam and has been identified as nicotine. As no other alkaloid could be detected, it is suggested that ecliptine is identical with nicotine.

EXPERIMENTAL

Isolation of the Alkaloid.—In a preliminary examination, 100 g. of the dry plant were kept immersed in Prollius' fluid for 12 hours and filtered. The filtrate was concentrated and tested with the reagents for the alkaloids with positive results. For isolating the alkaloid, 4 kg. of air-dried plant were treated in 4 lots of 1 kg. each. Each lot was kept immersed in 1% hydrochloric acid for 12 hours and then filtered. No alkaloid could be detected in the residue. 40 G. of sodium hydroxide were added to the filtrate and the solution was subjected to steam distillation. The distillation was stopped as soon as the distillate ceased to give pink colour with phenolphthalein. In this way, 300 c.c. of aqueous distillate from each lot were collected. The solution remaining in the flasks was evaporated to dryness on a water-bath. A black amorphous mass containing carbon, hydrogen, nitrogen, sulphur and phosphorus was obtained. This might be the 'resin' mentioned by Dymock and his co-workers and this on examination did not show the presence of an alkaloid. The aqueous distillates from each lot were mixed together and shaken repeatedly with equal volumes of ether in a separating funnel. All ethereal extracts were collected and ether distilled off at $30^{\circ}/177$ mm. A colourless liquid (3.1 g.) remained. This began to turn brown giving tobacco odour. It responds to all the tests for nicotine. It was immediately redistilled in hydrogen, b.p. 247° . (Found: C, 73.1, H, 8.6; N, 17.25. Calc. for $C_{11}H_{11}N_2$: C, 74.06; H, 8.64; N, 17.3 per cent).

Preparation of the Oxalate.—The alkaloid (5 g.) was dissolved in ether (50 c.c.) and treated with an ethereal solution (50 c.c.) of calculated quantity of oxalic acid and the solution shaken well. Ether was distilled off under reduced pressure. Colourless crystals remained, m.p. 77° , becoming 109° after resolidifying.

Preparation of Nicotinic Acid.—The alkaloid (0.5 g.) was mixed with dilute nitric acid (50 c.c.) in a dish and then evaporated to dryness on a water-bath. A brown solid remained, m.p. 228° . (Found: C, 57.2; H, 4.1; N, 11.1. Calc. for C_8H_7NCOOH : C, 58.5; H, 4.06; N, 11.3 per cent).

