

SHORT COMMUNICATIONS

A NEW ALKALOID FROM *ALANGIUM LAMARCKII* THWAITESSALIMUZZAMAN SIDDIQUI, M. AMJAD ALI
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A reinvestigation of fresh root bark of *Alangium lamarckii* Thwaites has led to the isolation of a hitherto unreported crystalline alkaloid in an yield of 0.25% (dry weight basis). The alkaloid crystallises from methanol in the form of prismatic rods, m.p. 281°, $[\alpha]_D^{22} = -68^\circ$ ($c=3$, pyridine), $pK_a = 7.3$ (aqueous dimethyl formamide). This base, which has been provisionally named as marckine, analyses for the molecular formula $C_{28}H_{35}N_3O_3$ and contains two methoxyls but no N-methyl. Its Kuhn-Roth determination indicates the presence of at least one C-methyl group. (Found after drying at 100° *in vacuo*: C, 73.08, 72.83; H, 8.01, 8.15; N, 8.90, 8.93; O, 10.54, 10.56; OCH_3 , 13.35, 13.32; C- CH_3 , 2.70, 2.59%; Mol. Wt. 473, 461. $C_{28}H_{35}N_3O_3$ requires: C, 72.85; H, 7.64; N, 9.10; O, 10.40; $2 \times OCH_3$, 13.44; $1 \times C-CH_3$ 3.25%; Mol. Wt. 461). The infra-red spectrum of marckine shows strong peak of NH at 3380 cm^{-1} but no OH or carbonyl absorption. The ultra-violet spectrum shows absorption maxima at 226 $m\mu$ ($\log \epsilon$, 4.47) and 281 $m\mu$ ($\log \epsilon$, 4.05) and a minimum at 252 $m\mu$ ($\log \epsilon$, 3.50) indicating the presence of an unconjugated indole moiety in the alkaloid.

Marckine is a diacidic base in which both the basic centres are of equal strength (one turning point on potentiometric titration). It forms a dipicrate, clusters of orange-red spike-shaped crystals from water m.p. 192° (decomp.) (Found after drying at 100° *in vacuo*: C, 52.00; H, 4.75; N, 14.15; O, 30.04%. $C_{28}H_{35}N_3O_3$, $(C_6H_3N_3O_7)_2$ requires: C, 52.23; H, 4.46; N, 13.71; O, 29.59%). Its chloroplatinate analyses for $C_{28}H_{35}N_3O_3$, H_2PtCl_6 (Found after drying at 100° *in vacuo*: C, 38.93; H, 4.52; N,

4.80; Pt, 21.49%. Calculated: C, 38.57; H, 4.24; N, 4.82; Pt, 22.39%).

With acetic anhydride in pyridine at ambient temperature, marckine yields a monoacetyl derivative, colourless needles from dilute alcohol, m.p. 225-8° (decomp.) (Found after drying at 100° *in vacuo*: C, 71.93; H, 7.37; N, 8.27; O, 12.40; OCH_3 11.92%. $C_{30}H_{37}N_3O_4$ requires: C, 71.54; H, 7.41; N, 8.34; O, 12.71; $2 \times OCH_3$, 12.32%). Potentiometric titration indicates that acetyl marckine is a monoacidic base. Moreover, it forms a monopicrate, m.p. 224-5° (decomp.) (Found after drying at 60° *in vacuo*: C, 58.79; H, 5.72; N, 11.80; O, 23.72%. $C_{30}H_{37}N_3O_4$, $C_6H_3N_3O_7$ requires: C, 59.01; H, 5.46; N, 11.47; O, 24.04%). This proves that, in acetyl marckine, one of the basic groups of marckine has been acetylated. Acetyl marckine also shows NH peak at 3400 cm^{-1} in the IR spectrum, though in considerably reduced intensity as compared with that of the parent alkaloid.

With excess of methyl iodide, marckine gives a methiodide, square plates and cubes, m.p. 270° (decomp.), which analyses for dimethyl marckine dimethiodide (Found after drying at 60° *in vacuo*: C, 48.57; H, 6.33; N, 5.17; O, 8.05; I, 31.98; OCH_3 , 7.42%. $C_{28}H_{33}N_3O_3$, $(CH_3)_2$, $(CH_3I)_2$, H_2O requires: C, 48.54; H, 5.94; N, 5.30; O, 8.09; I, 32.11; $2 \times OCH_3$, 7.83%). Acetyl marckine, on the other hand, gives methyl acetyl marckine methiodide, prismatic rods, m.p. 265° (decomp.) (Found after drying at 100° *in vacuo*: C, 56.58; H, 6.54; N, 6.34; O, 12.02; I, 18.63; OCH_3 , 9.05%. Calculated for $C_{30}H_{36}N_3O_4$, (CH_3) , (CH_3I) , H_2O : C, 56.72; H, 6.49; N, 6.20; O, 11.81; I, 18.75; $2 \times OCH_3$, 9.15%).

On selenium dehydrogenation at 300°, marckine yields a product, $C_{12}H_{10}N_2$, which has been identified as harman by mixed melting point, comparison of IR and UV spectra and X-ray powder photography, with the authentic specimen.

Further work on the constitution of the alkaloid is in progress.