

Hydrolysis of saponins in a mixture of dioxane-HCl (6:1) and column chromatography on SiO_2 as before gave five components which have been designated as Genin A-E in order of increasing polarity on TLC. Genin C and E were identical with **2** and **1**, respectively, by direct comparison. Genin A, m/e 484 (M, 14), 438[M-(COOH + H), 132], 424[M-(COOMe + H), 34], 378[M-(COOH + H)-(COOMe + H), 39], 292(RDA fragment a, 19), 246[a-(COOH + H), 566], 233[a-(C-COOH + 2H), 202], 232[a-(COOMe + H), 19], 219(123), 215(123), 191(RDA fragment b, 95), 187[a-(COOH + COOMe + H), 100], 186[a-(COOH + H)-(COOMe + H), 532], and 173[232-(C-COOH + 2H), 325]. Methyl-Genin A, m/e 498 (M, 51), 438[M-(COOMe + H), 269], 378[M-2(COOMe + H), 243], 306(RDA fragment a, 384), 246[a-(COOMe + H), 448], 233[a-(C-COOMe + 2H), 41], 215(179), 191(RDA fragment b, 102), 187[a-2(COOMe + H), 100], 186[a-2(COOMe + H), 666] and 173[246-(C-COOMe + 2H), 512]. Genin B, m/e 516 (M, 1), 498(M-H₂O, 21), 480(M-2H₂O, 26), 470[M-(COOH + H), 83], 456[M-(COOMe + H), 23], 292(862), 246(100), 233(132), 232(222), 223(RDA fragment b, 83), 219(118), 215(181), 187(737), 186(445) and 173(257).

Separation of steroids The MeOH less soluble fraction was extracted with CHCl_3 . Insoluble residue was crystallized from CHCl_3 -MeOH(1:1) to give **4a** + **b**. The residue from the CHCl_3 extract was chromatographed over SiO_2 . Elution with CHCl_3 yielded **3a** + **b** and elution with CHCl_3 -MeOH-NH₄OH-H₂O(20:4:1:3, lower) gave **5a** + **b**.

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AMIDES OF *PIPER CHABA*

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Key Word Index—*Piper chaba*, Piperaceae, alkamides, piperine, sylvatine, piperlonguminine

Plant. *Piper chaba* Hunter (Piperaceae) is a climbing glabrous (rather fleshy) creeper, cultivated in various parts of India and Malaya Islands¹. The roots and fruits find numerous applications in medicine, particularly useful in asthma, bronchitis, fever, pain in abdomen, as stimulant and in haemorrhoidal affections.¹ Earlier work² on the stems of this plant resulted in the isolation of piperine (**1**). The present investigation on the roots of this plant has resulted in the isolation of two other related alkamides (**2**, **3**) and sitosterol.

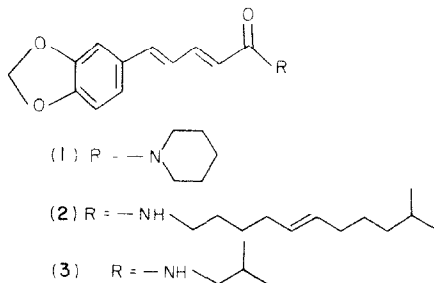
The air dried milled roots of *P. chaba* (6.5 kg) were soxhletted with petrol. (60–80°) for 40 hr. Removal of the solvent gave a semi-crystalline mass which was treated with Et₂O and left at 5° overnight. The crystalline residue separated was filtered off. The residue upon chromatography over silica gel afforded a light yellow compound crystallizing from C₆H₆-petrol. in needles (19 g) m.p. 129°, subsequently identified as piperine (**1**). The residue from the mother liquor upon chromatography over silica gel afforded sitosterol (m m p, IR and R_f values). C₆H₆ eluted first sylvatine³ (**2**), m.p. 112°, crystallizing in flakes (320 mg) from C₆H₆-petrol. and later piperine (~4 g). The residue from C₆H₆-CHCl₃

¹ KIRTIKAR, K. R. and BASU, B. D. (1935) *Indian Medicinal Plants*, 2nd edn, Vol. 3, p. 2130, L. M. Basu, Allahabad.

² BOSE, P. K. (1935) *Sci. & Cult.* **1**, 111.

³ BANERJI, A. and GHOSH, P. C. (1973) *Tetrahedron* **29**, 977.

(11) eluates furnished the third alkamide piperlonguminine⁴ (3), crystallizing in fine needles (400 mg) from CHCl_3 -petrol., m.p. 167–8°. This constitutes the first report of the occurrence of sylvatine and piperlonguminine in this plant.



The alkamides piperine, sylvatine and piperlonguminine were identified by direct comparison (m.m.p., PMR, IR, UV and co-TLC) with respective authentic samples.

Voucher specimen No. P C (r) has been preserved in our laboratory. This was collected by Home-O-Flora, Calcutta, and identified by Botanist Dr. P. C. Dutta, Department of Botany, Calcutta University, Calcutta.

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⁴ CHATTERJEE, A. and DUTTA, C. P. (1967) *Tetrahedron* **23**, 1769.

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5,7-DIHYDROXYCHROMONE FROM *POLYGONUM PERSICARIA* SEEDS

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Key Word Index—*Polygonum persicaria* L., Polygonaceae, 5,7-dihydroxychromone, quercetin-3-galactoside, kaempferol-3-galactoside, quercetin, kaempferol, sitosterol.

Plant *Polygonum persicaria* L. *Source*, Piedmont, Italy.

Previous work Flavonoids from leaves.¹ *Part examined* Seeds.

Present work Air dried seeds (2.2 Kg) were ground and extracted with light petroleum (b.p. 40–70°). The extract was concentrated and chromatographed on alumina column using successively for elution light petrol., CCl_4 , C_6H_6 , Et_2O and EtOAc . The ethyl acetate fractions gave after purification on a second column and crystallization from EtOH sito-

¹ MUKHAMMAD-YAROVA, M. M. (1968) *Khim. Priro. Soedin.* **4**, 131.