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RESEARCH NOTE

Alkaloids from *Xylopia parvifolia* and *Xylopia nigricans* (Annonaceae)

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The family Annonaceae is important phytochemically because of the frequent presence of isoquinoline alkaloids and, more recently on the basis of the restrictive occurrence of a very active class of natural products, the acetogenins[1]. It comprises 130 genera and some 2300 species[2]. Plants of the genus *Xylopia* have yielded products of different classes such as alkaloids, acetogenins, amides, flavonoids, lignoids, and terpenoids[2]. Members of the family Annonaceae are known to have a variety of alkaloids some of which are reported to have interesting biological properties[3]. Many plants that are known for their toxicity possess useful cytotoxic compounds[4]. Most of the Sri Lankan endemic species of the family Annonaceae have not previously been analysed for their chemical constituents and biological properties.

X. parvifolia (found in Sri Lanka and Southern Deccan peninsula) was collected from Menikthena forest, Central Sri Lanka, in January 2006 and *X. nigricans* (endemic) from Royal Botanic Gardens, Peradeniya in April 2005[5]. Voucher specimens have been deposited in the Department of Chemistry, University of Peradeniya, Peradeniya.

Air-dried stem bark of *X. parvifolia* (2 kg) was ground into a powder and sequentially extracted into dichloromethane (CH_2Cl_2) and methanol (MeOH) (5 L each) at room temperature. The CH_2Cl_2 extract (40 g) was dissolved in $CHCl_3$ and was partitioned with 2N HCl. The aqueous layer was basified with 20% NH_4OH and partitioned again with $CHCl_3$. The crude alkaloid mixture (3 g) obtained on chromatography yielded oxopurpureine (Figure 1a, 24 mg) as dark orange needles (CH_2Cl_2)[1,6], *O*-methylmoschatoline (Figure 1b, 15 mg) as orange needles (CH_2Cl_2)[7, 8] and (+)-laudanidine (Figure 1c, 10 mg) as brown colour powder[9]; the crude alkaloid mixture (4 g) obtained from an acid wash of the MeOH extract (50 g) yielded, (-)-discretine (Figure 1d, 60 mg) as sticky solid[10], nordicentrine (Figure 1e, 45 mg) as sticky solid[11] and dehydrocorytenchine (Figure 1f, 90 mg) as green crystals[12].

Air-dried root bark of *X. nigricans* (5 kg) was ground into a powder and sequentially extracted into CH_2Cl_2 and MeOH (10 L each) at room temperature to yield 205 g of CH_2Cl_2 extract and 430 g of MeOH extract. The crude alkaloid mixture taken from CH_2Cl_2 extract (1 g) yielded10-methoxyliriodene (Figure 1g, 30 mg) as yellowish brown amorphous solid[8]. The alkaloid portion of the methanol extract (3.8 g) yielded, (+)-S-reticulin (Figure 1h, 98 mg) as yellow needles[13] and oxoxylopine (Figure 1i, 23 mg) as pale brown powder[14].

Six alkaloids were isolated from CH_2Cl_2 and MeOH extracts of the stem bark of *X. parvifolia*. Three alkaloids were isolated from the CH_2Cl_2 and MeOH extracts of the root bark of *X. nigricans*. The alkaloids a-f (Figure 1) have previously been isolated from *X. championii* and their antifungal and antioxidant activities reported[15]. (+)-*S*-reticulin exhibited 67.8 % antioxidant activity compared to the standard DL-□-Tocopherol (55.8 %) in the 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay[16].

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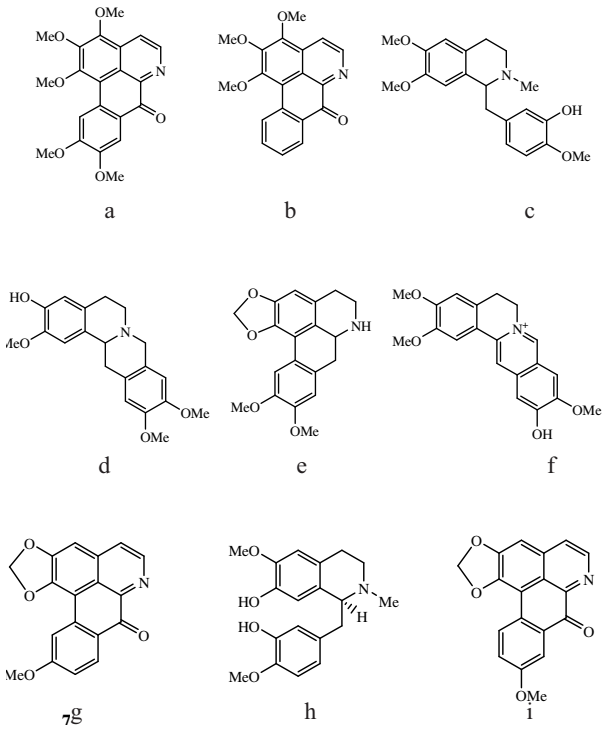

Figure 1: Alkaloids isolated from stem bark of *X. parvifolia* (a-f) and root bark of *X. nigricans* (g-i)

Spectral data [^{1}H, ^{13}C nuclear magnetic resonance (NMR) and mass] and physical data (m.p., Co-TLC, optical rotation) of reported or isolated compounds were used in the identification of the alkaloids a-i [1,6-13]

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