

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 acetogenins¹. It comprises 130 genera and some 2300 species². Plants of the genus *Xylopia* have yielded products of different classes such as alkaloids, acetogenins, amides, flavonoids, lignoids, and terpenoids². Members of the family Annonaceae are known to have a variety of alkaloids some of which are reported to have interesting biological properties³. Many plants that are known for their toxicity possess useful cytotoxic compounds⁴. 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 2005⁵. 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 (CH₂Cl₂) and methanol (MeOH) (5 L each) at room temperature. The CH₂Cl₂ extract (40 g) was dissolved in CHCl₃ and was partitioned with 2N HCl. The aqueous layer was basified with 20% NH₄OH and partitioned again with CHCl₃. The crude alkaloid mixture

(3 g) obtained on chromatography yielded oxopurpureine (Figure 1a, 24 mg) as dark orange needles (CH₂Cl₂)^{1,6}, *O*-methylmoschatoline (Figure 1b, 15 mg) as orange needles (CH₂Cl₂)^{7, 8} and (+)-laudanidine (Figure 1c, 10 mg) as brown colour powder⁹; 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 solid¹⁰, nordicentrine (Figure 1e, 45 mg) as sticky solid¹¹ and dehydrocorytenchine (Figure 1f, 90 mg) as green crystals¹².

Air-dried root bark of *X. nigricans* (5 kg) was ground into a powder and sequentially extracted into CH₂Cl₂ and MeOH (10 L each) at room temperature to yield 205 g of CH₂Cl₂ extract and 430 g of MeOH extract. The crude alkaloid mixture taken from CH₂Cl₂ extract (1 g) yielded 10-methoxyliriodene (Figure 1g, 30 mg) as yellowish brown amorphous solid⁸. The alkaloid portion of the methanol extract (3.8 g) yielded, (+)-*S*-reticuline (Figure 1h, 98 mg) as yellow needles¹³ and oxoxylopine (Figure 1i, 23 mg) as pale brown powder¹⁴.

Six alkaloids were isolated from CH₂Cl₂ and MeOH extracts of the stem bark of *X. parvifolia*. Three alkaloids were isolated from the CH₂Cl₂ 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 reported¹⁵. (+)-*S*-reticuline exhibited 67.8 % antioxidant activity compared to the standard DL-α-Tocopherol (55.8%) in the 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay¹⁶.

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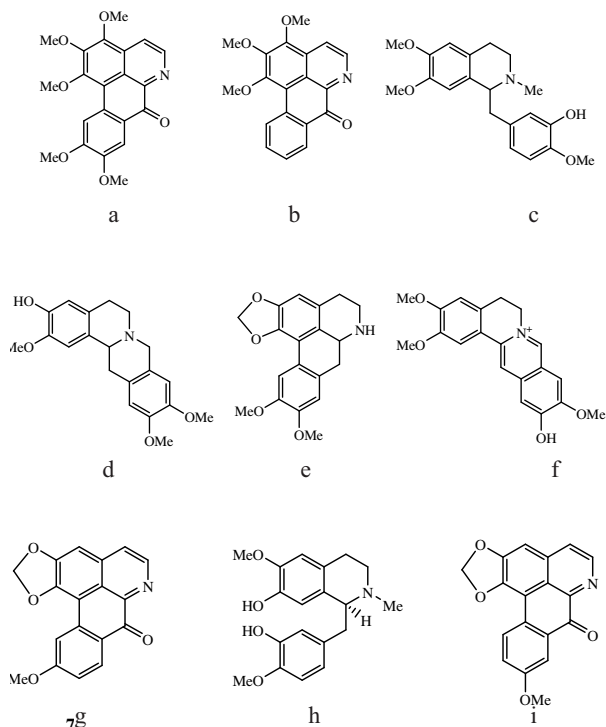


Figure 1: Alkaloids isolated from stem bark of *X. parvifolia* (a-f) and root bark of *X. nigricans* (g-i)

Spectral data [^1H , ^{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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