$N$-trans-feruloyltyramine from two species of the Solanaceae

Julia Turnock$^a$, Sally Cowan$^a$, Alison Watson$^a$, Barbara Bartholomew$^a$, Colin Bright$^a$, Zahid Latif$^a$, Satyajit D. Sarker$^{b,*}$, Robert J. Nash$^c$

$^a$MolecularNature Limited, Plas Gogerddan, Aberystwyth, Ceredigion SY23 3EB, UK
$^b$Pharmaceutical Sciences Section, School of Pharmacy, The Robert Gordon University, Schoolhill, Aberdeen AB10 1FR, Scotland, UK
$^c$Institute of Grassland and Environmental Research, Plas Gogerddan, Aberystwyth, Ceredigion SY23 3EB, UK

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1. Subject and source

*Cestrum lanatum* Mart. & Gal. (Family: Solanaceae) is a species of the central American genus *Cestrum* (USDA-ARS-GRIN database, 1999a). The aerial parts of this plant were collected from Costa Rica and supplied by Biotics Limited, University of Sussex, Brighton, UK. A voucher specimen (BT177) for this collection has been retained by the supplier. *Solanum citrullifolium* A. Braun, a plant from north America (USDA-ARS-GRIN database, 1999b) of the family Solanaceae, was grown at IGER greenhouse during 1997, aerial parts were collected, and a voucher specimen (IG85) has been deposited at the herbarium of IGER.

2. Previous work

None
3. Present study

The CH$_2$Cl$_2$ extract of the aerial parts of *Cestrum lanatum* (1.0 kg) was fractionated by Biotage$^{\text{TM}}$ 75 flash chromatography on silica gel using a step gradient of increasing polarity: $n$-hexane–EtOAc–MeOH with 9 fractions of 1000 ml. Reverse-phase preparative HPLC (C$_{18}$ preparative column, eluted with a gradient — water : acetonitrile : 0.1% TFA in acetonitrile = 90 : 00 : 10–00 : 90 : 10 in 25 min, 55 ml/min, detection at 210 nm) of the flash fraction 7 (75% EtOAc in $n$-hexane) has yielded *N*-trans-feruloyltyramine (1, 15.4 mg) (Sarker et al., 2000; Fukuda et al., 1983). Similar treatment of the CH$_2$Cl$_2$ extract of the aerial parts of *Solanum citrullifolium* (0.73 kg) also produced compound 1 (25.0 mg). Structure of 1 has been determined on the basis of UV, $^1$H NMR, $^{13}$C NMR and LC-MS data, and direct comparison with the literature data.

![Structure of N-trans-feruloyltyramine (1)](image)

4. Chemotaxonomic significance

Glycoalkaloids are the major secondary metabolites found in the species of both the genera *Cestrum* and *Solanum* (Dictionary of Natural Products, 1999). While *N*-trans-feruloyltyramine (1) has never been reported from any species of the genus *Cestrum*, it has been found in the genus *Solanum* (Keller et al., 1996; Muhlenbeck et al., 1996; Negrel et al., 1996), and also in other genera of the family Solanaceae (Negrel and Martin, 1984; Pearce et al., 1998). Compound 1 has also been isolated from several other families, notably, Annonaceae (Chaves and Rouque, 1997; Chen et al., 1998, 1997; Wu et al., 1995), Aristolochiaceae (Wu et al., 1994), Balanitaceae (Sarker et al., 2000), Cannabaceae (Matsunaga et al., 1997), Fumariaceae (Rucker et al., 1994; Hussain et al., 1982), Liliaceae (Latvala et al., 1995), Menispermaceae (Cavin et al., 1998), Papaveraceae (Gozler et al., 1992) and Plumbaginaceae (Yue et al., 1997). The chemotaxonomic or ecological significance of *N*-trans-feruloyltyramine is yet to be established.

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References