1. Introduction

Plants belonging to the Amaryllidaceae family are well known for their beautiful flowers and medicinal use in folk medicine. These plants, classified into 60 genera, are distributed through both tropical and subtropical regions of the world and are dominant in Andean South America, the Mediterranean basin, and southern Africa, where one third of the 1000 known species grow. Amaryllidaceae plants, namely Crinum buphanoides, Crinum graminicola, and Van Staden, 2013). Recently, the native South Africa Amaryllidaceae plants, namely Crinum graminicola and Crinum buphanoides were purchased from the South African Bulb Company (http://www. thesabulbcompany.co.za/) and three live specimens of each are growing in the Botanical Garden at the University of Stellenbosch, Stellenbosch, South Africa. Fresh bulbs of C. buphanoides (1.0 Kg) and C. graminicola (1.0 Kg) were dried at 40 °C for 48 h and then finely minced. The resulting material (191.7 g) of C. buphanoides (CB) was extracted on a lyophilizer. The organic extract appeared as a brown oil (266.6 mg) and was further fractionated by column chromatography and eluted with CHCl₃-EtOAc-MeOH (2:2:1) affording 7 fractions (CBF1-7) CBF1 was further purified on a TLC plate with CHCl₃-i-PrOH (98:2) as eluent to afford apocynin 1
Isolation of acetovanillone 1 from both C. buphanoides and C. graminicola and piceol 2 from C. buphanoides is described here for the first time. The metabolites were identified essentially by MS and NMR spectroscopic data which were compared with those previously reported in the literature (Borah et al., 2017; Tagwireyi and Majinda, 2017). Acetovanillone 1 has previously been reported as being isolated from Boophone disticha (Tutin, 1911) and more recently re-isolated from the same species. In addition, the important anti-inflammatory activity of 1 has been reported (Van den Worm et al., 2001). Piceol 2 was isolated for the first time from Crinium buphanoides, and was previously isolated together with its glucoside, picein, from the needles of the Norway spruce (Picea abies) (Lakke, 1990). Interestingly, derivatives of 2 viz., 2-hydroxy-4,6-dimethoxyacetophenone and 2,4,6-trimethoxyacetophenone were isolated together with fifteen alkaloids, including phenanthridine-, benzylphenethylamine-, crinane-, pyrrolophenanthridine-, licorenane- and galanthamine-type alkaloids from Lycoris albilora whose aqueous extract showed potent anticancer activity against HL-60 cells (Jitsuno et al., 2011). Of considerable interest was that two new isomeric glycosides viz., 4,6-dimethoxyacetophenone-2-O-β-D-glucoside and 2,6-dimethoxyacetophenone-4-O-β-D-glucoside were isolated together with the known 2,6-trimethoxyacetophenone from Pancratium biflorum (Ghosal et al., 1989). In this research, the allelopathic activity of the two glucosides and their aglycones were evaluated on the growth on the bulbs of two other Amaryllidaceae species. Furthermore, the glucosides showed anticancer activity while their aglycones exhibited the ability to modulate prostaglandine synthetase activity. These interesting results encourage the further investigation of the biological activities of 1 and 2. In addition, in our opinion it would also be worthwhile to prepare a range of diverse derivatives in order to perform structure activity relationship (SAR) studies with respect to a variety of bioassays.

The isolation for the first time of acetovanillone 1 and piceol 2 is of noteworthy taxonomic value and these two metabolites could be used as potential markers for quality control in medicinal and other preparations using extracts of both C. buphanoides and C graminicola as ingredients.

### List of abbreviations

- **1H NMR**: Proton Nuclear Magnetic Resonance
- **13C NMR**: Carbon-13 Nuclear Magnetic Resonance
- **ESI MS**: Electrospray Mass Spectrometry
- **TLC**: Thin Layer Chromatography

### Acknowledgements

The work was supported in part by grants from a bilateral project between the Italian and South-Africa Ministry of Foreign Affairs Area: South Africa, Medicine and Health Project number: ZA14M006, titled: Bioactive metabolites from South-Africa plants with anticancer activity. WvO and IRG thank the South African National Research Foundation (NRF) (Incentive and CPRR funding), and Stellenbosch University (Faculty and Departmental support). The authors thank Mr. Pierfrancesco Motti for his contributions to this work and Dr. Martin Smit (Curator – Stellenbosch University Botanical Garden) for the facilitation of live plant specimens. BM acknowledges the ZA14M006 Italian-RSA Bilateral grant for funding of a research stay in Naples. MM, CM and AE thank the Department of Chemical Sciences, University of Naples Federico II for the support grants. AE is associated to the Istituto di Chimica Biomolecolare del CNR, Pozzuoli, Italy.

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Fig. 1. Structures of acetovanillone 1 and piceol 2.
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