

B179 Alkaloids of *Hippeastrum* (Amaryllidaceae) from the South of Brazil

A.E. Hoffman Jr, A.F.S. da Silva, A.C.E. da Fonseca, C. Sebben, M. Sobral, A.T. Henriques and J.A.S. Zuanazzi. Programa de Pós-Graduação em Ciências Farmacêuticas (Universidade Federal do Rio Grande do Sul). Av. Ipiranga, 2752. CEP 90.610-000. Porto Alegre (RS), Brazil.

The Amaryllidaceae comprises about 13 tribes, 58 genera and 870 species distributed in tropical and subtropical regions of the world (1). *Hippeastrum* is one of the 11 genera of the American tribe Hippeastreae (2), with about 60 species ranging from Mexico to Argentina. Amaryllidaceae alkaloids have shown a wide range of biological activities including antitumor, antiviral, antimalarial and immunostimulant. In Rio Grande do Sul, Brazil, there exist about 8 species, 2 of which were collected and surveyed until now, *Hippeastrum glaucescens* (Mart.) Herb. and *H. vittatum* (L'Hérit.) Herb. Using classical methods of total alkaloid extraction, bulbs and aerial parts were analyzed. The yield varied from 0.03% to 0.5% in the bulbs and 0.02 to 0.1% in aerial parts, for *H. glaucescens* and *H. vittatum*, respectively. Four alkaloids were isolated from the bulbs of *H. glaucescens*: lycorine, pretazetine, tazetine and an unidentified one with a tazetine-type nucleus. As far as we know, till now there are no reports on chemical or pharmacological studies of this species. From the bulbs of *H. vittatum* the alkaloid montanine, not previously reported for this species, was isolated. The total alkaloid extract from bulbs and leaves of *H. glaucescens* showed cytotoxicity to lung (H460) and colorectal (HT29) tumour cells, whereas those from *H. vittatum* showed important antitumoral activity in colorectal (HT29) and glioma (U373) cell lines at concentrations of 0,4 µg/ml.

Acknowledgements: This work had financial support from CNPQ and FAPERGS.

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B180 Nutritional elements and antioxidative properties of mate (*Ilex paraguariensis*)

M. Haaf, K. Fisch and W. Knöss

Institute of Pharmaceutical Biology, University of Bonn, Nussallee 6. D-53115 Bonn, Germany.

In large regions of South America leaves of the mate tree are traditionally used to prepare stimulating teas. Mate was already consumed some hundred years ago by the Indians of South America and many tales and stories have been reported about nutritional and health protective features of mate.

Recently, we reported on variability of phytochemical constituents of mate which are useful markers in quality control. The content of caffeine and caffeoyl-quinic acids was shown to be defined at the level of individual plants. Earlier literature reports on high levels of ascorbic acid could not be verified (1). Now, we investigated the variability of nutritional elements in mate samples from different years. Antioxidative properties of mate were measured and samples in parallel characterized phytochemically (caffeine, rutin, caffeoyl-quinic acids by HPLC; pigments photometrically).

Levels of K, Ca, Mg, Mn, Fe, Zn, Na and Cu in green mate were determined by means of atomic absorption spectrometry. Generally, the variability of content for each element was low. Especially interesting was the remarkable content of Mn (1.8 to 2.5 g/kg dry weight). Samples of toasted mate showed no significant deviations.

Antioxidative properties of extracts and of purified compounds from mate were estimated by means of an iron-katalyzed TBA-based assay. Preparations of green mate were shown to have substantial antioxidative properties. In concentrations of about 40 µg mate per ml extract inhibition by different samples was 40 to 60% compared to the reference compound linolenic acid. Analysis of purified compounds revealed that antioxidative capacity of dicaffeoyl-quinic acids (50% inhibition) is higher than of monocaffeoyl-quinic acids (30% inhibition).

Antioxidative properties of mate have already been reported in literature (2,3). Because of the large variability of caffeoyl-quinic acids in mate we recommend that it is always necessary to analyze the phytochemical composition of mate samples when they are assayed on health protective features which could be due to antioxidative properties.

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