

## Triterpenoids from the leaves of *Ilex theezans* Martius ex Reiss.\*

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**SUMMARY.** From *Ilex theezans* leaves, a species reported as adulterant of the genuine erva-maté (*Ilex paraguariensis* St. Hil.), two saponins and one triterpene have been isolated. Their structures were elucidated by mean of spectroscopic methods. The saponins were identified as the 28-O-β-D-glucopyranosylester of rotundic acid (pedunculósido, 1) and the 28-O-β-D-glucopyranosylester of rotundioic acid (2). The triterpene was identified as rotundic acid (3).

**RESUMEN.** "Triterpenoides de las hojas de *Ilex theezans* Martius". *Ilex theezans* Martius ex Reiss. es una de las especies que ha sido mencionada como adulterante de la yerba mate verdadera (*Ilex paraguariensis* St. Hil.). Dos saponinas y un triterpeno de las hojas fueron aislados y sus estructuras químicas elucidadas a través de métodos espectroscópicos como el éster 28-O-β-D-glucopiranosido del ácido rotúndico (pedunculósido, 1) y el éster 28-O-β-D-glucopiranosido del ácido rotundioico (2). El triterpeno fue identificado como el ácido rotúndico (3).

### INTRODUCTION

During the last years we have systematically studied the saponins of *Ilex paraguariensis* (genuine erva-maté) and other species reported as substitute or adulterant of erva-maté<sup>1</sup>. The utilization of other *Ilex* species in this traditional beverage has to be seen within the historical context of maté production considering that, until the middle of this century, some of these species have been proposed as maté substitutes. After then, the sanitary legislation of several South American countries clearly established maté as a product exclusively obtained from *Ilex paraguariensis*, forbidding the alimentary use of its near relatives. These latter are generally known as "caúna" or "congonha" followed by a second name related to other characteristics, at the most case to the geographical occurrence, for example "caúna-da-serra" (caúna of the mountain) or "caúna-da-praia" (caúna of the beach). Although the production of erva-maté is becoming more industrialized and controlled, its

adulteration by variable quantities of leaves of other *Ilex* species is still a problem in some regions where the wild collected raw material play an important role for the maté production.

After having established the accumulation of saponins in the leaves of *Ilex paraguariensis*<sup>2-5</sup>, we have investigated the saponins of *Ilex dumosa*<sup>6,7</sup>, *Ilex taubertiana*<sup>8</sup>, *Ilex pseudobuxus*<sup>9</sup> and *Ilex argentina*<sup>10</sup>. Continuing this work, we report herein our results concerning the isolation and structural elucidation of two saponins and an acid triterpene from the leaves of *Ilex theezans* Mart. ex Reiss., popularly called as "caúna amargosa" (bitter caúna). This species is known to impart a bitter taste to the maté beverage<sup>11</sup> and, notwithstanding this property, it had been proposed as a substitute for *Ilex paraguariensis*.

### MATERIALS AND METHODS

#### General experimental procedures

EIMS, CIMS and FABMS spectra were per-

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**PALABRAS CLAVE:** ácido rotúndico, ácido rotundioico, Aquifoliaceae, *Ilex theezans*, pedunculósido, saponinas

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