

PYRROLIZIDINE ALKALOIDS AND OTHER COMPONENTS OF *SENECIO VIRA-VIRA*ELIZABETH JARES and ALICIA B. POMILIO<sup>1,\*</sup>

*Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Pabellón 2, Ciudad Universitaria, 1428 Buenos Aires, Argentina*

As a continuation of our work on Argentinian plants toxic to cattle, we report here for the first time the flavonoids, terpenoids, steroids, and pyrrolizidine alkaloids of *Senecio vira-vira* Hieron. (Compositae; tribe Senecioneae). As far as we know, this is the first report on the occurrence of isorhamnetin 3-O- $\beta$ -robinobioside in the Compositae. It has been previously found in the Amaranthaceae (1). Uspallatine has been isolated only from *Senecio uspallatensis* (2).

## EXPERIMENTAL

**PLANT MATERIAL.**—Whole plants of *S. vira-vira* were collected at Dept. Río Primero in the Province of Córdoba, Argentina. A voucher specimen was deposited in the Herbarium of Museo Botánico, Universidad Nacional de Córdoba, Argentina.

**EXTRACTION, ISOLATION AND IDENTIFICATION OF THE COMPOUNDS.**—Dried, ground, whole plants (2.4 kg) were first extracted with petroleum ether (60–80°) and then with MeOH. The components of the petroleum ether extract were linear hydrocarbons from C<sub>23</sub>H<sub>48</sub> to C<sub>33</sub>H<sub>68</sub>, sitosterol, campesterol, stigmasterol,  $\alpha$ - and  $\beta$ -amyrins, stigmasta-3,5-dien-7-one, and stigmasta-4,6-dien-3-one.

The MeOH extract (44.5 g) gave, by repeated cc and hplc, several fractions rich in flavonoids. These were isolated and identified as quercetin 3-O- $\alpha$ -rhamnopyranoside (quercitrin) (50 mg) (3,4), quercetin 3-O- $\beta$ -rutinoside (rutin) (10 mg) (3), and isorhamnetin 3-O- $\beta$ -robinobioside (30 mg) (1). Macrocyclic pyrrolizidine alkaloids of the senecane type were also obtained from another portion of the MeOH extract. Repeated cc yielded anacrotine (9 mg) (5), neoplathyphylline (6 mg) (6), and uspallatine (12 mg) (2).

Identification of the compounds was made on the basis of spectral and chemical data as well as by comparison with authentic samples. Full details of the isolation and identification are available on request to the senior author.

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<sup>1</sup>Research Member of the National Research Council of Argentina (CONICET).