buted to the accelerated growth of this organ. During this period, the plant stem would be principally engaged in the production of structural tissue with a resulting decrease in the production of secondary compounds. Alternatively, a change in tissue morphology might result in a reduction in the relative proportion of alkaloid storage cells.

Two new alkaloids for this species (*N*-formylcytisine and *N*-acetylcytisine) were found in both stem types.

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CONSTITUENTS OF *JASMINUM AZORICUM*

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Jasminum azoricum L. (Oleaceae) is a climbing, evergreen shrub indigenous to the Canary Islands (1) and cultivated in Egypt as an ornamental. Several species of *Jasminum* have been used medicinally (2), and a number of them have been examined for their secondary chemical constituents (3-8). In the current literature, nothing could be found concerning the chemical constituents of *J. azoricum*. In this communication, we report the isolation and identification of three iridoids, four flavonoids, two alcohols, three terpenoids, and five fatty acids from the leaves of *J. azoricum*.

The leaf chemical constituents show considerable variation from those reported to be present in other closely related species of *Jasminum* growing in Egypt (6,7).

EXPERIMENTAL

GENERAL EXPERIMENTAL PROCEDURES.—Uv spectra were recorded in MeOH on Unicam SP 1750, pmr spectra in CD_3OD at 90 MHz and ms at 70 eV on AEI MS 90 spectrophotometers. Adsorbents were from E. Merck. Standard methods for identification of flavonoids were applied (10,11).

Full details of the isolation and identification of the compounds are available on request to the senior author.

PLANT MATERIAL.—The plant was collected in March 1981, from the Experimental Station of the Faculty of Agriculture, Assiut University, Egypt.

EXTRACTION AND FRACTIONATION.—Dried, powdered leaves (2.5 kg) of *J. azoricum* were successively extracted with petroleum ether and 90% aqueous EtOH. The petroleum ether extract (37 g) was saponified with 1 liter of 30% alcoholic KOH for 2 h. The unsaponifiable material (2.95 g) was fractionated over alumina (120 g) to yield α-amyrin (58 mg, mp 183-186°, acetate mp 225-227°), β-amyrin (21 mg, mp 197-198°, acetate mp 201-203°), ceryl alcohol (23 mg, mp 80-82°, acetate mp 66-68°) and β-sitosterol (42 mg, mp 135-138°, acetate mp 125-127°).

The methyl esters of the fatty acid mixture (9) were analyzed by glc on 10% polyethylene glycol adipate supported on chromosorb W. The following fatty acids were detected and estimated: linoleic (43.0%), oleic (21.6%), palmitic (27.8%), myristic (0.8%), lauric (1.2%), unknown (2.4%), and unknown (3.2%).

The alcoholic extract (53.5 g) was divided into two equal parts. The first half was fractionated over silica gel (800 g) using $CHCl_3$-MeOH mixtures, to give: quercetrin (55 mg, mp 250-252°, mmp no depression), kaempferol-3-*O*-rhamnoside (23 mg, mp 172-175°; uv λ max 269, 290 sh, 350 nm), kaempferol-3-*O*-rhamnoglucoside (62 mg, mp 222-223°; uv λ max 268, 290 sh, 349 nm; acid hydrolysis yielded kaempferol, rhamnose, and glucose), rutin (75 mg, mp 189-192°, mixed mp no depression) and mannitol (1.85 g, mp 166-168°, mixed mp no depression, M^+ 182).

The second half of the alcoholic extract was chromatographed over alumina (1 kg). Fractions eluted by $CHCl_3$-MeOH mixtures 9:1, 8:2, and 7:3 showed five pink spots by silica gel tlc ($CHCl_3$-MeOH 82:18; H_2SO_4 visualization). Further fractionation over silica gel (200 g) gave three iridoids: jasminin glucoside (180 mg, mp 158-159°, mmp no depression), sambacin glucoside (52 mg, mp 150-153°, recently isolated by us for the first time from *Jasminum sambac* Ait. (7), and an as yet uncharacterized compound (200 mg, mp 146-148°, uv λ max 262 nm, M^+ 364), provisionally termed azoricin upon which work is in progress to identify its structure.

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CINNAMIC ACID ESTERS FROM *MEUM ATHAMANTICUM*

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Meum athamanticum Jacq. (Umbelliferae) is an herbaceous plant, widespread in the western and central European mountains. Aqueous and methanolic extracts of the rhizome show a platelet anti-aggregant activity *in vitro* (1). Part of the activity is associated (1) with the presence of methyl esters of 1-caffeoyl and 1-feruloyl quinic acids (2) in the methanolic extract. We wish to report here the purification and identification of four additional cinnamic acid esters from the rhizome of *M. athamanticum*. From the aqueous extract, 2.3 mg of methyl ferulate (4-hydroxy-3-methoxy cinnamic acid methyl ester), 4 mg of methyl caffeate (3,4-dihydroxycinnamic acid methyl ester), and 80 mg of malonic acid were isolated; 2.4 mg of caffeoyl quinic acid (3,4-dihydroxy cinnamoyl quinic acid) and 2 mg of feruloyl quinic acid (4-hydroxy-3-methoxy cinnamoyl quinic acid) were separated from the methanolic extract. All compounds were identified by uv, ir, pmr, and/or ms. Both caffeoyl quinic and malonic acids co-chromatographed with reference samples on tlc; however, the spectral data obtained did not permit the location of the position of acylation of the quinyl moiety in either feruloyl quinic or caffeoyl quinic acids. Methyl ferulate and particularly methyl caffeate showed a significant platelet anti-aggregant activity in vitro.

Full details of the isolation and identification of the compounds are available on request.