EXPERIMENTELLES

Blattspreiten, Blattstiele und Stengel der einzelnen Arten wurden nach der Ernte sofort gefriergetrocknet. Von dem fein gepulvertem Material wurden mit einem Turrax-Rührer CH_2Cl_2-Extrakte hergestellt. Die Zentrifugate wurden unter vermindertem Druck im Wasserbad von 35° eingeengt und auf DC-Plastikfolien Kieselgel F_{254} Merck® entwickelt. Als Fließmittel bewährten sich *n*-Hexan/MeCOEt (4:1) und vor allem *n*-Hexan/Me_2CO (7:3). Als Testsubstanzen standen Valtrat, Didrovaltrat und Acevaltrat zur Verfügung. Außerdem dienten ein CH_2Cl_2-Extrakt einer Handelsmischung der Valepotriate (Valmane® Drg. Fa. Kali Chemie AG, Hannover) und Vanillin, das nach Schild[1] in dem Fließmittel *n*-Hexan/MeCOEt (4:1) im R_f-Bereich des Isovaleroxy-hydroxy-didrovaltrats liegt, als Vergleich. Die entwickelten Folien, die bei Betrachtung im kurzwelligen UV-Bereich mehrere fluoreszenslöschende Zonen im R_f-Bereich von 0,6–0,3 zeigten, wurden mit dem Benzidin-Salzsäure-Reagenz nach Schild besprüht und anschließend kurze Zeit bei 120° getrocknet. Es bildeten sich mehrere für Valepotriate typische blaue bzw. gelborange Zonen. Die einzelnen Verbindungen wurden mit Hilfe präparativer DC (Fließmittel: *n*-Hexan/MeCOEt, 4:1) isoliert und durch UV-Spektren näher charakterisiert (siehe Tabelle).

		Valtrat	Didrovaltrat	Acevaltrat
Substanz *x*	R_f 0,6	R_f 0,6		
UV λ_{max}	204, 256 nm	204, 256 nm		
Substanz *y*	R_f 0,5		R_f 0,5	
UV λ_{max}	208 nm		208 nm	
Substanz *z*	R_f 0,45			R_f 0,45
UV λ_{max}	204, 256 nm			204, 256 nm

Die Untersuchung der oberirdischen Organe weiterer Arten der Valerianaceen sowie die genauere chemische Charakterisierung der Substanzen sind in Vorbereitung. Ferner soll auf die Verteilung der Valepotriate in den einzelnen Pflanzenorganen sowohl in qualitativer als auch quantitativer Hinsicht näher eingegangen werden.

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TERPENES AND OTHER COMPONENTS FROM *BUNIUM CYLINDRICUM* SEEDS

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Key Word Index—*Bunium cylindricum*; Umbelliferae; mono- and sesqui-terpenes; alkanes.

Plant. Bunium cylindricum Grossheim (Umbelliferae) (Voucher specimen no. 12712, deposited at Survey & Herbarium Division, RRL, Jammu); obtained through the courtesy of local drug dealer. The seeds of this plant are used as adulterant to *Carum gracile* Lindl. (kalazeera) used in Ayurvedic system of medicine. *Previous work.* On seeds.[1] *Present work.* In a recent publication we reported the isolation of a new acid[1] from the seeds of *Bunium cylindricum*. We now wish to report the further work on the plant. Steam volatile oil was analysed by combination of fractional distillation, alumina column chromatography, preparative $AgNO_3$-Silica gel TLC and GLC. The 10 main components isolated and identified are dillapiole, myristicin, l(−)-bornyl acetate, α-, β- and γ-elemene, β-selinene, 7(H)-

[1] AGARWAL, S. G. and ATAL, C. K. (1972) *Indian J. Chem.* **10**, 675.

selinen-4-ol (juniper camphor), elemol and 4-methyl-4-hydroxy-penten-2-oic acid[1] by direct comparison of retention time in GLC, R_f values on TLC, and by their IR, NMR and MS. Petrol. (60–80°) extract of seeds afforded sitosterol (needles. m.p. 136–136·5°), tricontane and tricontanol. These compounds did not show any depression in their m.m.p. with authentic samples.

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AGAVE GHIESBRECHTII, A NEW SOURCE OF GLORIOGENIN

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Key Word Index—*Agave ghiesbrechtii*; Agavaceae; gloriogenin; 5β,25α-spirostan-3β-ol-12-one.

From *Furcraea selloa* C.Koch, Marker *et al.*[1] isolated furcogenin, which they claimed to be 5β,25α-spirostan-3β-ol-12-one, but in a later paper, Marker and Lopez[2] showed that furcogenin was a mixture of smilagenin and hecogenin. A compound with the same structure was reported by Marker and Applezweig[3] under the name jimogenin, but no physical or chemical data was given and the plant source was not listed. Gloriogenin was isolated from the leaves of *Yucca gloriosa* L. by Dávila and Panizo[4] and the structure of the compound was established as 5β,25α-spirostan-3β-ol-12-one by Gonzáles *et al.*[5] Gloriogenin has been isolated also from the seeds of *Y. glauca* Nutt. by Stohs *et al.*[6] In connection with our investigations of the steroidal sapogenin content of the family Agavaceae, we now report the isolation of gloriogenin from the leaves of *Agave ghiesbrechtii*.

The saponins of *A. ghiesbrechtii* were hydrolysed to give the sapogenins, which were examined by two-dimensional TLC. Five sapogenin spots were detected with H_2SO_4, four of which co-chromatographed with smilagenin, diosgenin, gentrogenin and hecogenin respectively, in order of decreasing R_f. The fifth spot, labelled A, had an R_f slightly higher than that of gentrogenin and did not co-chromatograph with any of the reference sapogenins available to us. The spot produced a yellow colour with H_2SO_4, indicating that

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