mies of adults of *Eurycotis,* it is possible that 2-hexenal functions as a repellent or deterrent if the insect is attacked by a predator. Derivatives of 2-hexenal have been investigated as possible insecticides or insect repellents by the Orlando laboratories (*12*), and it is interesting to note that *Eurycotis* was using this compound long before man recognized a need for insect repellents.

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Ultraviolet Absorption Spectra of Lichen Depsides and Depsidones

The two largest groups of aromatic lichen substances are classified as the depsides and depsidones. They consist of orcinol (5-methyl-1,3-benzenediol) and β-orcinol (2,5-dimethyl-1,3-benzenediol) derivative carboxylic acids joined by an ester linkage (depside) similar to digallic acid or by an ester and an ether linkage (depsidone) that binds the two rings. These unique metabolic products of lichens constitute 1 to 5 percent of the dry weight of the plant body, from which they may be extracted by ordinary chemical methods and purified by recrystallization (*1*).

In preparing the extracts for spectroscopy, it is difficult to find a suitable solvent. Depsides and depsidones are insoluble or barely soluble in many common nonpolar and polar organic solvents. Although acetone dissolves all of them, it is unfit as a solvent in ultraviolet. The substances could, however, be dissolved in 95-percent ethanol in concentrations of $10^{-4}M$, although not without danger of alcoholysis when prolonged heating was necessary. The absorbancy of the alcoholic solutions was measured on the Beckman model DU spectrophotometer (*2*).

The orcinol depsides have a characteristic bimodal spectrum of molar absorbancy in the range 240 to 330 mμ (Fig. 1*A*), which is shared even by orseillic acid, a common hydrolytic product of depsides, and the tridepside gyrophoric acid. Absorption maxima occur at about 270 and 307 mμ. Substitutions on the phenyl rings, as methoxyl in place of hydroxyl radicals, or the length of the alkyl side chains (CH_3— to C_7H_{15}—) have little effect on the position of λ_{max}. The β-orcinol depsidones also have bimodal spectra (Fig. 1*B*) with maxima near 238 and 312 mμ; absorbancy is much higher in shorter than in longer wavelengths. Curves of the β-orcinol depsides resemble those of β-orcinol depsidones although the absorption bands are not as sharp. The orcinol depsidones have poorly defined curves with a maximum at 245 to 255 mμ and a slight peak or leveling at 310 to 320 mμ (Fig. 1*C*). As a rule, increasing numbers of substituents, especially carboxyl or carbonyl radicals, exert a dampening effect on the absorption bands.

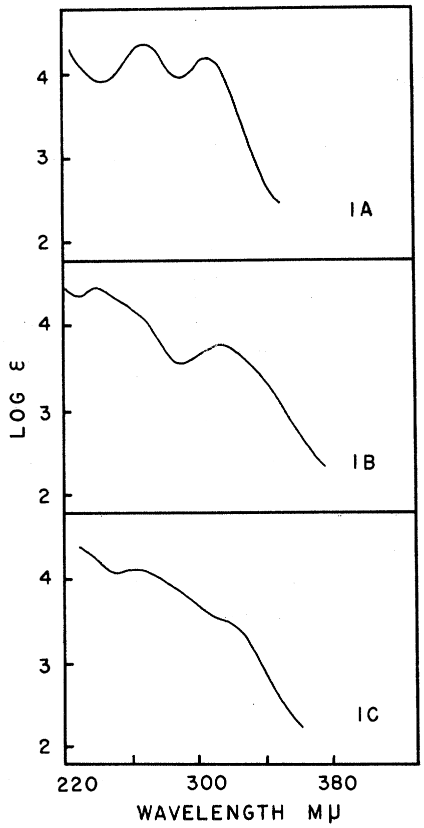

Fig. 1. Log molar absorption spectra for three lichen acids dissolved in 95-percent ethanol: (*A*) lecanoric acid, a common orcinol depside ($\lambda_{max.}$ 270 and 307 mμ); (*B*) salazinic acid, a common β-orcinol depsidone ($\lambda_{max.}$ 239 and 312 mμ); (*C*) physodic acid, an orcinol depsidone ($\lambda_{max.}$ 256 mμ).

These absorption spectra have provided a valuable means of identifying unknowns that are eluted from chromatograms and that are available only in minute quantities. Spectra of other lichen substances, such as the dibenzofuranes (*3*), quinones (*4*), and fatty acids, are completely dissimilar. Spectrophotometry will undoubtedly be an indispensable tool for analyses of precursors to the depsides and depsidones in pure cultures of the lichenized fungi (*5*) as well as for assays of the substances in chemotherapy (*6*).

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The design of a computing device with intelligence enough to make mistakes and make a fool of itself, like a human being, is one ultimate goal in modern electronic computor design.—ROBERT K. PLUMB, *New York Times,* 24 Mar. 1955.