

DALRUBONES AND COUMARINS IN *DALEA TINCTORIA*

DAVID L. DREYER

Department of Chemistry, San Francisco State University, San Francisco, CA 94132, U.S.A.

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A previous report from this laboratory described the isolation of coumarin, 5-methoxycoumarin, dalrubone (1) and methoxydalrubone (2) from extracts of *Dalea emoryi* and *D. polyadenia** [1]. This note reports the isolation of these four compounds from extracts of *D. tinctoria* [2], a Mexican member of this genus. The compounds were isolated by classical methods [1] and identity shown by direct comparison of spectral data. The biosynthetic route previously proposed [1] to account for the origin of the dalrubones involved an inversion of the A and B-rings of a flavonoid system so that the B-ring possesses the characteristic *meta* oxygenation pattern. Recently, Saitoh and Shibata [3] have reported the isolation and structure determination of two new chalcones from a *Glycyrrhiza* spp. (Leguminosae) which suggest from their oxygenation pattern that the A-ring arises from shikimate and the B-ring from acetate. This biosynthetic origin was confirmed by appropriate labeling experiments [4]. The dalrubones thus appear to

constitute further examples of flavonoids having converted A and B-rings.

The characteristic odor of crushed plant material from both *D. emoryi* and *D. tinctoria* appears due to its coumarin content.

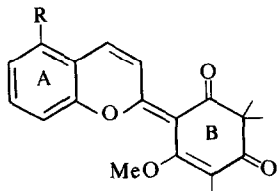
EXPERIMENTAL

Plant material was collected in central Baja California, Mexico. The ground plant material was extracted with C_6H_6 and chromatographed on Al_2O_3 . The red fraction, eluted with C_6H_6 , was worked up to give dalrubone and methoxydalrubone identical in all respects with samples previously isolated from *D. emoryi* [1]. Sublimation of the first red fractions off the column gave mixture of coumarin and 5-methoxycoumarin.

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- 1 R = H
2 R = OMe

*Methoxydalrubone was not found in *D. polyadenia*.