

tions to Costus Absolute 0.1% in petrolatum. The materials were also applied to six eczema patients who attended the clinic for a standard screening tray. Helichrysum produced $\pm$ reactions which were judged to be irritant in two of the three individuals and in four of the six patients. The other materials produced negative reactions in all instances.

By analysis by NMR and TLC of the materials estragon and helichrysum, no SQL could be demonstrated.

Discussion

Plants of these genera are known to produce contact dermatitis and some of these perfume materials are derived from plants which are known to yield SQL, but from these findings it seems likely that the commercial extracts which were tested were free of significant amounts of such lactones.

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Absence of cross sensitivity between *Toxicodendron* (syn. *Rhus*) and *Blepharocarya*

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Literature

Australian North Queensland forest officers were unanimous in stating that the wood of *Blepharocarya involucrigera* (Bolly gum) was poisonous if rubbed on the skin (Cleland 1943).

Botany

The family Blepharocaryaceae Airy Shaw, which is represented by two species in one genus native to north and eastern Australia as trees with hairy young parts, is related to the family Anacardiaceae in which it was formerly included. It differs in having opposite pinnate leaves and a highly peculiar female inflorescence (Airy Shaw 1973).

Materials

A total of 39 individuals (14m/25f) known to be contact sensitive to *Toxicodendron* syn.

Rhus (poison ivy-oak) were patch-tested to dried leaves of *Blepharocarya involucrigera* obtained from Division of Forest Research, C.S.I.R.O., Atherton, N. Queensland, suggested by Donald Robertson, Brisbane, Australia.

Results

A total of 3/34 (2m/1f) showed 1+ reactions to the leaf; these reactions were judged to be irritant. Twelve males and 24 females showed negative patch test reactions to the leaves suggesting that allergenic pentadecyl-catechols (as in poison ivy-oak) are probably absent from the leaves of *Blepharocarya involucrigera*.

Acknowledgement

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Dermatitis due to benzocaine present in sunscreens containing glyceryl PABA (Escalol 106)

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The glyceryl ester of para-aminobenzoic acid (glyceryl PABA) (Escalol 106) has long been used as a sunscreen agent in the United States. Meltzer & Baer (1949) and Curtis & Crawford (1951) reported individual patients sensitized to glyceryl PABA in a sunscreen with cross sensitivity to numerous "para-amino" compounds including benzocaine. The results of these previous reports are shown in Table 1. Satulsky (1950) and Goldman & Epstein (1969) reported contact photosensitivity to glyceryl PABA, but did not investigate cross sensitivity reactions to this compound.

Recently I (1976) reported four patients who acquired sunscreen dermatitis due to Escalol 106 (glyceryl PABA). The results of these patch tests are shown in Table 2. It should be noted that all four patients show "cross reactions" with benzocaine and some of the "para-amino" compounds. Three of these patients gave a history of previous benzocaine sensitivity. It is of interest to note that the four patients with benzocaine and glyceryl PABA sensitivity did not show cross reactions to the more recently introduced sunscreens Escalol 506 (amyl dimethyl PABA), and Escalol 507 (octyl dimethyl PABA) which are also PABA derivatives.

Relationship of benzocaine to the Escalols

Benzocaine (ethyl para-aminobenzoate) and Escalol 106 (glyceryl para-aminobenzoate) both contain an NH_2 group and are true esters of PABA.

Escalol 506 (amyl para-dimethyl aminobenzoate) is $(\text{CH}_3)_2\text{N}-\text{C}_6\text{H}_4-\text{CO}_2\text{C}_5\text{H}_{11}$.

Escalol 507 (2-ethyl hexyl paradimethylamino-benzoate) is $(\text{CH}_3)_2\text{N}-\text{C}_6\text{H}_4-\text{CO}_2\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{C}_4\text{H}_9$.

Escalol 506 and 507 do not contain the NH_2 grouping present in Escalol 106 and benzocaine and are not true PABA esters. Hence it is not surprising that they do not show cross reactions with benzocaine and Escalol 106.

The fact that all previously reported cases of glyceryl PABA sensitivity showed such uniformly strong positive reactions to benzocaine aroused the suspicion that such reactions might not entirely be explained by a "cross reaction" phenomenon. Consideration was then given to the possibility that in the manufacture of glyceryl PABA from PABA, the closely related benzocaine was probably also formed. This indeed proved to be the case. Chemical analysis showed that Escalol 106 contained 13% benzocaine. This finding made it likely that some of the previous case reports of "cross-reactions" between benzocaine and Escalol 106 were actually due to the presence of benzocaine in the sunscreen. Examination revealed that Escalol 506 and 507 *do not* contain benzocaine.

It is obvious that the sunscreens shown in Table 3 which contain glyceryl PABA (Escalol 106) will have to be avoided by benzocaine-sensitive individuals and used with great caution in individuals with allergic hypersensitivity to other "para-amino" compounds.

This is the first report in the literature showing the presence of benzocaine in sunscreens containing Escalol 106 (glyceryl PABA), both of which are derived from para-aminobenzoic acid. Escalol 506 (amyl dimethyl PABA) and Escalol 507 (octyl dimethyl PABA) which are also derived from para-aminobenzoic acid, are free of benzocaine and do not cross react with Escalol 106.

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