

AIRBORNE SALICACEAE ALLERGY IN LADAKH

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A total of 65 patients who presented with eczema of the exposed parts of body in Ladakh at 3300 meters above sea level between July 97 to Sept 98 were studied. Forty-seven (72.3%) of the patients were in third and fourth decade (range 4-55 years). There were 34 (52.3%) males and 31 (47.7%) females belonging to varied occupations like farmers 14 (21.53%), housewives 12 (18.46%), soldiers/general duty 9 (13.84%), students 7 (10.76%), soldier/clerks 6 (9.23%), drivers 4 (6.15%) etc. In 49 (75.38%) the onset of illness was between April to July and 37 (75.5%) of them showed positive patch test reaction to either or both poplar and willow. Positive patch test reactions were also seen in 17 (77.27%) out of 22 in whom the disease was recurrent with periodicity once a year as compared to 3 (50%) out of 6 when the periodicity was more than once a year. Involvement of cubital and popliteal fossae and dorsum of the feet was rarely found. Patch test was found positive to willow (*Salix sp.*) alone in 22 (33.84%), to poplar (*Populus sp.*) alone in 24 (36.92%) and to both in 3 (4.61%), that is an overall positivity in 49 (75.38%). *Populus sp.* and *Salix sp.* belong to the same family Salicaceae, however the cross-reactivity seen between the two has been found to be uncommon suggesting different chemical structure of their allergenic substance.

Key Words : Airborne contact dermatitis, *Salix sp.*, *Populus sp.*, *Salicaceae*

Introduction

Not long ago Ladakh used to be the name synonymous with brown, barren and blinding mountains, the highest desert in the world. In 1979, Field Research Laboratories (FRL), one of the laboratories of Defence Research and Development Organisation (DRDO) took up a challenge for greening of Ladakh by introducing new varieties and multiplying existing tree species mainly poplar (*Populus alba*, *P nigra*) and willow (*Salix alba*, *S. fragilis*).¹ The other trees found in this area are fruit trees of apricot (*Prunus americana*) and to much lesser extent the trees of apple (*Malus pumila*) and walnut (*Juglans regia*). During the winter months extending from Octo-

ber to March the trees are only brown stems. Budding and leaves start in the month of April onwards. We started seeing cases of eczematous dermatitis affecting predominantly exposed parts of the body, some of which were previously labelled as polymorphic light eruptions. This prompted us to undertake a study of airborne allergy of the locally found flora in Ladakh at 3300 meters above sea level. In an earlier study conducted by this author it was proved that there was no evidence of photophytoprodermatitis, no patch test positivity was found to the flowers of apple or apricot trees and only 4% of these were cases of PMLE.²

Materials and Methods

A total of 65 cases that presented with eczema of the exposed parts of the body between Jun 97 to Sep 98

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were undertaken in this study. Anybody who had stayed for less than 15 days after induction or reinduction into high altitude was excluded from the study. Flowers of poplar and willow trees were collected and dried. Patch tests were performed with 1:5 paste of flowers of poplar and willow in all the 65 patients by the method as described by Pasricha.³ Readings were taken after 48 to 72 hours and readings graded from 1 + to 3 + as recommended by the International Contact Dermatitis Research Group.

Results

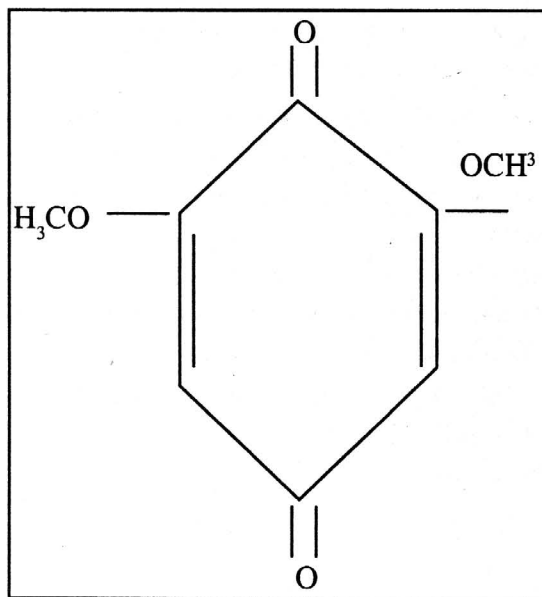
The average age of the patients was 30.01 years (range 4-55 years). Majority 47 (72.3%) patients were in third and fourth decade. There were 34 (52.3%) males and 31 females. The patients belonged to varied occupations like farmers 14 (21.53%), housewives 12 (18.46%), soldiers/general duty 9 (13.84%), students 7 (10.76%), soldier/clerks 6 (9.23%), drivers 4 (6.15%), operators 2 (3.08%) and carpenter, mechanic, cook, shopkeeper, tailor, sweeper, engineer and child one (1.53%) each.

In 34 (91.89%) out of 37 with duration of illness less than one year this was the first episode and 26 (76.47%) showed positive patch test to either or both poplar and willow. Positive patch test reactions were also seen in 17 (77.27%) out of 22 with periodicity once a year and in only 3 (50%) out of 6 when periodicity was twice or more in a year. Two patients (3.07%) did not know about the periodicity or the month of onset of the illness. In 49 (75.38%) the onset of illness was between April to July and 37 (75.5%) showed positive patch test reaction. In 14 (21.53%) the eczematous lesions used to appear in rest of the eight months of the year and 10 (71.24%) showed positive reaction.

Lateral sides of the neck 35 (55.84%), cheeks 33 (50.76%), forehead 27 (41.35%), nape of the neck 26 (40%), dorsum of the hand 22 (33.84%), extensors of fore-

arm 22 (33.84%), eyelids 19 (29.23%) and chin 14 (21.38%) were the most commonly involved sites. Cubital fossa (4.61%) was uncommonly involved and no case was seen with involvement of dorsum of feet or popliteal

Fig.1 2,6 Dimethoxybenzoquinone



fossae.

Patch test was found positive to willow (*Salix* sp.) alone in 22 (33.84%), to poplar (*Populus* sp.) alone in 24 (36.92%) and to both poplar and willow in 3 (4.61%), that is an overall positivity in 49 (75.38%).

Discussion

The plants which are commonly known to cause airborne allergy like compositae (*Parthenium hysterophorus*, *ambrosia*, *iva*, *xanthium*) and lichens are not found in Ladakh.^{1,4} Allergic contact dermatitis due to poplar in bee keepers has been described earlier by Hausen.⁵ The poplar buds contain resin 2,6 dimethoxybenzoquinone (Fig.1), which is used by the bees for making their hives and patients who are sensitive to

Balsam of Peru react to it. Airborne allergy to populus sp. and salix sp. has been described earlier by Sawhney.² Furthermore both populus sp. and salix sp. belong to the same family salicaceae. However the cross-reactivity found between the two geni was only in 3(6.12%) out of the 49 having positive patch test reactions suggesting that the chemical structures of the resin in them may be similar but not the same.⁶

Airborne salicaceae allergy in Ladakh is most commonly seen in the period extending from April to July with possibility of recurrence every year. This presents most commonly in third and fourth decade and there is no sexual or occupational predisposition. There is no photophyodermatitis as has been reported earlier.² Involvement of dorsum of feet, popliteal and cubital fossae has been found to be rare as the people living in this area remain well covered due to prevailing cold climate even during summer months.

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