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## Allergic and irritant occupational contact dermatitis from alstroemeria

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*Key words:* *Alstroemeria*; occupational; allergic contact dermatitis; irritant contact dermatitis; plants; florists;  $\alpha$ -methylene- $\gamma$ -butyrolactone; calcium oxalate crystals. © Munksgaard, 2001.

We report 2 cases of contact dermatitis from alstroemeria in 42- and 23-year-old female patients who had worked as florists, respectively, for 15 and 2 years. The 1st patient, who was the owner of large plant houses, also worked on picking. They had had for 12 and 2 months, respectively, a pruriginous dry pulpitis with hyperkeratosis and fissuring localized to the 1st 3 digits of both hands, extending to the palmar aspect of the right hand in the 1st patient. Occasional episodes of pruriginous vesiculation of the fingers had also been experienced by both.

The 1st patient, patch tested with the GPEDC standard series, pesticide and plant series (Chemotechnique or Trolab allergens) and several plants brought in by her, had positive reactions (++ or +++) to fresh pieces of the flower, stem and leaf of alstroemeria and to  $\alpha$ -methylene- $\gamma$ -butyrolactone [ $\alpha$ M $\gamma$ BL] at 0.01% pet. (Chemotechnique). The 2nd patient, who reacted only to  $\alpha$ M $\gamma$ BL in the 1st set of patch tests, also had positive reactions to the pieces of alstroemeria, a plant that she worked with, even though she had not suspected it. Both patients reacted to ketonic and alcoholic extracts of alstroemeria, extemporaneously prepared and incorporated at 1% pet. The plants were identified in the Botanical Department of the University of Coimbra as *Alstroemeria ligtu*, which is a cultivar increasingly popular among florists (1–3).

Although both patients improved considerably on reducing skin contact with alstroemeria and protecting themselves with vinyl and latex gloves, complete clearing of the dermatitis has not been achieved, very probably because, as stated in previous reports, the allergen penetrates rubber and vinyl gloves (3). These are typical cases of occupational allergic contact dermatitis from alstroemeria due to  $\alpha$ -methylene- $\gamma$ -butyrolactone or tulipalin A, the allergen also in tulip bulbs, which elicits the characteristic pattern of dry pulpitis of the 1st 3 digits in florists – also known as tulip fingers – extending to the right palm in workers who pick the flowers (4–7), as did our 1st patient.

Nevertheless, the clinical picture of dry fissured pulpitis and palmar dermatitis also suggests an irritant contact dermatitis from plants, due to the chemical activity of plant enzymes or to the mechanical action of sharp plant structures, namely glochids or raphides (8). In search of a possible mechanical irritant mechanism, we optically microscopied fresh pieces of alstroemeria leaves and flowers and the sap of the plant, collected after breaking the stem like florists do. At 40 $\times$  magnification, we saw multiple needle-shaped structures in the sap, either isolated or in large agglomerates, which were typical of calcium oxalate crystals at a higher magnification (100 $\times$ ). In confirmation of the nature of these crystals, we observed their dissolution when adding HCl to the preparation, while none such occurred on adding CH<sub>3</sub>COOH (9). Such calcium oxalate crystals have been described in several plants (8), as well as in tulip bulbs (10), but we have found no previous description of their presence in alstroemeria.

We conclude that this occupational contact dermatitis is caused not just by delayed-type hypersensitivity to  $\alpha$ M $\gamma$ BL, but by a non-specific inflammatory reaction caused by needle-shaped calcium oxalate crystals, which subsequently facilitates sensitization to  $\alpha$ M $\gamma$ BL.

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