

Short Communications

Experimental study of contact dermatitis due to alstroemeria in guinea pigs

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Contact allergy from handling alstroemeria (*Alstroemeria*) has been widely observed in horticulturalists and florists (1–5). α -methylene- γ -butyrolactone (α -MBL) has been shown to be the causative agent (6, 7). In the present study, delayed-type contact dermatitis due to alstroemeria was evaluated using the guinea pig maximization test (GMT) (8), and the intensity of allergic reactions was investigated by quantifying the contents of α -MBL in different parts of alstroemeria by high-performance liquid chromatography (HPLC) (9).

Irritation was found when 0.5 or 1.0 W/W% α -MBL in physiological saline (phys S) was applied to unsensitized female guinea pig skin. Original extracts prepared by the method of Christensen (9) from flowers and leaves of alstroemeria and 5-fold diluted solution also showed irritation on the animals' skin. To detect delayed-type allergy due to alstroemeria, 1.0 W/W% α -MBL in physS was applied to guinea pigs for induction and 0.1 W/W% α -MBL physS as challenge in the GMT. 5-fold diluted solutions of flower, leaf and stem extracts were also applied to the animals for induction and 10-fold diluted solutions of these extracts as challenge in the GMT. Delayed-type allergy to alstroemeria was observed in both GMTs (Table 1). Maximization grading was performed 24 h after challenge in the test. Both α -MBL in physS and the diluted original

extracts from the flowers induced extreme reactions and the extracts of leaves and stems induced strong reaction.

Flowers showed the highest concentration of α -MBL (1.23 ± 0.13 ; mean $\pm$ 1SD; mg/g-wet, $n=5$), while leaves contained the lowest concentration and stems the middle, in the extracts prepared freshly by water extraction.

In conclusion, not only irritation but also sensitization was observed in guinea pig skin exposed to extracts from alstroemeria. Determination of α -MBL is a useful method of estimating the allergic contact dermatitis risk from alstroemeria.

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Table 1. Allergenicity of water extracts of *Alstroemeria* Wilhelmina in the GMT

Induction material	Challenge material	Challenge results		
		24 h	48 h	72 h
α -MBL	α -MBL	12/12	12/12	10/12
control	α -MBL	0/12	0/12	0/12
flowers	flowers	11/12	8/12	6/12
control	flowers	0/12	0/12	0/12
leaves	leaves	9/12	5/12	3/12
control	leaves	0/12	0/12	0/12
stems	stems	9/12	8/12	3/12
control	stems	0/12	0/12	0/12