

Letters to the Editor

Simultaneous occupational allergy to a carnation and its parasite in a greenhouse worker

To the Editor:

Key words: Carnation, *Dianthus caryophyllus*, greenhouse worker, hypersensitivity, occupational asthma, *Tetranychus urticae*

Ornamental flowers are a source of many different allergenic proteins such as pollen, fungi, parasites, and proteins from leaves.¹ Sensitivity to *Tetranychus urticae* (TU) is a frequent cause of occupational allergy in carnation greenhouse workers,² although recently carnation (*Dianthus caryophyllus*) has also been implicated as an occupational allergen.^{3,4} A case of occupational asthma caused by carnation in a patient sensitized to TU is described.

A 29-year-old nonsmoking man who had been working in decorative flower cultivation attended an allergy clinic for respiratory symptoms. He had no family or personal history of atopy. He had cough and dyspnea while working in the greenhouse cultivating flowers.

An allergologic study was performed. Routine skin prick tests (SPT) with the most frequent allergens in our area were performed with negative results. SPTs with TU (Bial-Aristegui) were positive. Total serum IgE was 74 IU/mL. Serum-specific IgE levels to TU (radioallergosorbent test [RAST], Bial-Aristegui) were 1.68 KU/L. SDS-PAGE immunoblotting with TU extract showed two IgE-binding protein bands of 19 and 35 kd. Spirometry was normal with no significant response in the bronchodilation test. Methacholine challenge test showed moderate bronchial hyperreactivity (2 mg/mL). Diurnal variations in the peak expiratory flow suggested an occupational asthma. Occupational asthma from TU was diagnosed and the patient was advised to avoid working in greenhouses.

Four months later the patient reported that wheezing and dyspnea had also appeared when he was working in a flower shop. Symptoms had appeared only when he was carrying carnations.

SPTs with carnation extract 20 mg/mL were positive. Significant specific IgE serum levels to carnation (RAST, Bial-Aristegui) were detected (class 2) (0.7 to 3.5 PRU/mL). SDS-PAGE immunoblotting showed several binding IgE protein bands with molecular weights ranging from 14 to 45 kd. Bronchial challenge test with 0.05 mg/mL of carnation extract was positive.

The number of reported patients with occupational asthma caused by ornamental flowers has recently increased, and several presented a suggestive clinical history related to carnation exposure.²⁻⁴

In the study reported by Delgado et al² all patients had occupational asthma from carnation exposure caused by TU allergy, and none had hypersensitivity to carnation proteins. Recently Sánchez-Guerrero et al⁴ demonstrated the involvement of carnation proteins in occupational allergy caused by an IgE-mediated mechanism in 16 subjects employed in indoor carnation cultivation; no allergy to TU was mentioned.

Ornamental flowers are an important source of many different allergens. In this report allergy to carnation and TU appeared simultaneously in the same patient. Thus in carnation workers many allergens must be investigated in occupational allergy; not only the flower itself but also its parasites (TU) may be implicated simultaneously in the same patient.

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Extrinsic allergic alveolitis caused by cabreuva wood dust

To the Editor:

Key words: Extrinsic allergic alveolitis (hypersensitivity pneumonitis), cabreuva wood dust, inhalation challenge test

Many wood types are known to cause occupational asthma resulting from allergic or irritative pathomechanisms. Cabreuva (*Myrcarpus fastigiatus*), a South American wood, has not been studied in detail so far. We present a case of extrinsic allergic alveolitis associated with occupational exposure to cabreuva dust in a 36-year-old man.

The 36-year-old parquet floor layer has worked in this occupation for 6 years. He handled different wood types. His work was associated with intensive exposure to wood dust, especially during sawing and grinding. There had been no complaints until 5 months ago, when he started using cabreuva wood intermittently. As far as the patient remembered, he had only once before (1 year ago), without symptoms, been in contact with this wood type. There were five episodes of severe cough, shortness of breath, fever of up to 42°C, and shivering each time in association with the use of cabreuva wood. Symptoms occurred 4 to 5 hours after work start and lasted until the next morning.

The patient was sent to our outpatient department for diagnostic testing.

Physical examination and lung function tests showed no abnormalities. The methacholine challenge test did not reveal bronchial hyperreactivity. Skin prick tests with 20 common indoor and environmental allergens were negative. A nonstandardized prick test with extract of cabreuva wood dust produced a borderline wheal-and-flare reaction. Neither IgE nor IgG antibodies to cabreuva wood extract were found.

An exposure test with fresh cabreuva wood dust the patient had brought the day before from his workplace resulted in a restrictive ventilation pattern with severe hypoxemia, fever, and leukocytosis (Fig 1). Auscultation revealed bilateral basal moist crepitation that had not been present before the test. Bronchoalveolar lavage fluid obtained 24 hours later by bronchoscopy showed a strong increase in total cells (63×10^6 , normal $<13 \times 10^6$) with a mixed granulocytic (13.5%, normal $<3\%$) and lymphocytic (37.5%, normal $<13\%$) alveolitis and a preponderance of CD8⁺ cells with a strong-

ly reduced CD4/CD8 ratio of 0.10 (normal 1.1-3.5) and an absolute increase of natural killer cells (12.5%, normal 2%-14%).

Wood dust is well known to cause bronchial asthma.^{1,2} However, only a few case reports described extrinsic allergic alveolitis (hypersensitivity pneumonitis) in woodmen and sawmill workers.^{3,4} According to results of antibody analyses and mold identification in dust samples, *Cryptostroma corticale* and other molds were thought to be causative.

Cabreuva wood is a hard, greenish-brown wood with dark bright veins belonging to the family Fabaceae (Leguminosae). It has a sweet, woody-floral, very delicate smell and a great tenacity. The origin of this wood, which is mainly used for parquet floors, is South America.

Only one case report in the literature has described respiratory symptoms caused by cabreuva wood dust.⁵ The authors reported an asthma attack and a systemic toxic reaction with fever, vomiting, myalgia, and leukocytosis with neutrophilia. These are typical findings of extrinsic allergic alveolitis. Obviously, it was the same type of reaction we observed in our patient. Because of the isolated interpretation of the FEV₁ decrease (other lung function parameters such as forced vital capacity and T_{LCO} were not given), the definite ventilation pattern (restrictive and obstructive) of this case is not clear.

We do not interpret our patient's acute response to cabreuva wood dust as a toxic effect or a disorder corresponding to organic dust toxic syndrome because transient moist crepitation and lung function impairment associated with severe hypoxemia are not typical for such reactions. Further, the diagnosis of extrinsic allergic alveolitis is substantiated by the characteristic combination of a restrictive ventilation pattern, lymphocytic (CD8⁺) alveolitis, and systemic inflammatory reactions occurring several hours after exposure. It should be mentioned that the patient did not show signs of lung fibrosis in chest x-ray examination and lung function testing.

This is in contrast to many patients who have had farmer's lung disease for years. However, an intermittent exposure with only five episodes seems to be too rare to result in such a chronic stage of extrinsic allergic alveolitis.

We recommended that the patient should avoid contact with cabreuva wood. After following our advice, he has been free of symptoms for half a year while still being engaged as a parquet floor layer.

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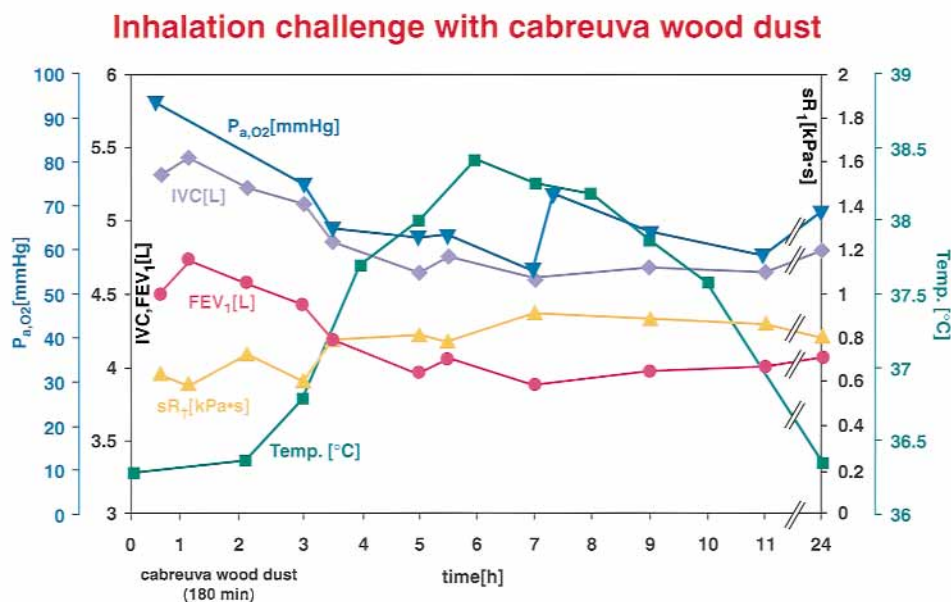


FIG 1. Acute extrinsic alveolitis occurring several hours after occupational-type exposure to shaking cabreuva wood dust. The patient handled wood dust obtained by grinding for 180 minutes. Lung function parameters were measured by body plethysmography (MasterLab, Jaeger, Wuerzburg, Germany). sR, Specific airway resistance; IVC, inspiratory vital capacity; temp, body temperature. ◆, IVC (L); ▼, P_aO₂ (mm Hg); ■, temperature (°C); ▲, sR, (kPa*s); ●, FEV₁ (L).