

# ANTIGENIC PROPERTIES OF COTTON AND WALNUT POLLEN

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When rabbits are immunized with cotton and walnut pollen, specific precipitins and hemagglutinins appear in their blood. Cotton and walnut pollen contains at least three unrelated antigens.

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The study of the antigenic properties of pollen from plants most widespread and commonly encountered under the conditions of Uzbekistan is of definite importance because it can help to elucidate the etiology of certain allergic diseases [1-5].

The object of the present investigation was to determine the antigenic properties of cotton and walnut pollen in experiments on rabbits.

## EXPERIMENTAL METHOD

The animals were immunized by 3 subcutaneous injections, at weekly intervals, of 2 ml of 5% pollen suspension in Freund's adjuvant. Two months later the rabbits were injected with 2 ml of a saline extract of pollen daily for 3 days: intraperitoneally on the 1st day, subcutaneously on the 2nd, and intravenously on the 3rd day. These injections were repeated in the course of 4 weeks. Extract of pollen from the plants was prepared in Kok's reagent, bearing in mind experience gained at the Allergologic Research Laboratory, AMN SSSR [6]. Antibodies were detected by Ouchterlony's specific gel-precipitation reaction [9] and by the hemagglutination reaction with twice diazotized benzidine [8]. Preliminary experiments on intact animals showed that cotton and walnut pollen extract does not possess toxic properties [7].

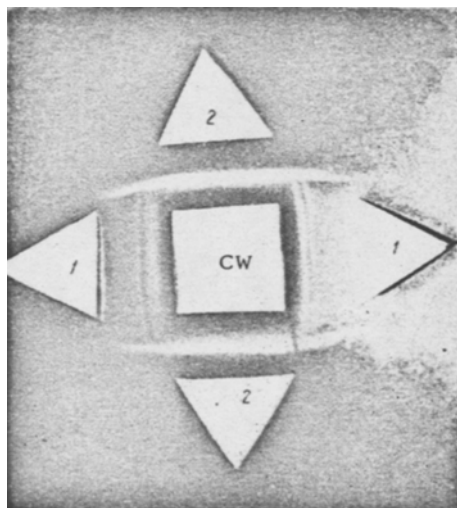


Fig. 1. Precipitation reaction in agar with serum of a rabbit immunized with cotton and walnut pollen. CW: anti-serum against cotton and walnut pollen: 1) extract of walnut pollen; 2) extract of cotton pollen.

## EXPERIMENTAL RESULTS

Experiments were carried out on 19 rabbits (10 experimental and 9 control). The precipitation reaction with pollen extract from cotton, walnut, oriental plane, poplar, ash, and other plants was negative in all intact animals. Specific antibodies began to appear in the blood of the experimental rabbits 2 weeks after the beginning of injection of cotton and walnut pollen. The antibody titer reached a maximum (1:32) toward the 4th week after the beginning of pollen injection, and remained at this level for about 2 months, when it began to fall gradually.

In the course of immunization, the increase in the antibody titer was accompanied by an increase in the number and intensity of the precipitation lines. We found only three precipitation lines in the test with cotton and walnut pollen (Fig. 1). Serum of rabbits immunized with cotton or walnut pollen did not give a positive reaction with pollen extract from other plants (oriental plane, poplar, ash, etc.). This indicates the strict specificity of this reaction.

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To detect any possible crossed reactions between cotton and walnut pollen antigens, five rabbits were immunized with combined cotton and walnut pollen.

The results showed that cotton and walnut pollen antigens are unidentical and unrelated (Fig. 1). Hemagglutinating antibodies to cotton pollen were not found in any intact rabbits. Starting from the 2nd week of immunization, hemagglutinating antibodies were found in all experimental animals, their titer rising during immunization to reach a maximum of 1:160 (in 2 rabbits), 1:320 (in one rabbit), and 1:5120 (in 7 rabbits) on the 21st day of the investigation.

The titer of hemagglutinating antibodies was thus much higher than the titer of precipitins. This reaction likewise was strictly specific.

It can be concluded from the results of these experiments that cotton and walnut pollen possesses well marked antigenic properties. When rabbits are immunized with the pollen of these plants, specific precipitins and hemagglutinins appear in their blood stream. Cotton pollen and walnut pollen are not identical antigenically, and each consists of at least three unrelated antigenic components.

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