

FALSE-MILDEW
(PHYTOPHTORA INFESTANS) AS AN
ALLERGENIC FACTOR

By

A. LIEBESKIND *

As it is widely known, clinical evidence points more and more to molds as the etiologic agents responsible for many allergies. So far our interest in mold allergies was limited to several better known mold families as *Demiataceae*, *Moniliaceae*, *Tuberculariaceae* etc. of the *Hyphomycetales*-Ordo of *Deuteromycetes*-Class (*Fungi imperfecti*) and to some *Mucorales* of the *Zygomycetes*-Class. All these representative molds, well known to allergists, belong to *Eumycotina*-Subdivisio.

Recently (1), a reference to some *Basidiospores* has been made as a source of allergens in the neighborhood of woods and it may explain the exacerbations of summer asthma in or near the woodland districts.

Certain species of microorganisms can be cultured more often from certain particular pollens.

As bacterial products can provoke asthmatic reactions in the bronchi (2, 3), it was desirable to find out whether extracts from microorganisms cultivated from pollen, could provoke, in the absence of any other pollen derivatives, reactions of an allergic type. These extracts might be of fungal origin, as was proved in the cases described by *Colldahl H. & Carlsson* (4), who cultivated *Cryptococcus luteolus* from Birch pollen (*Betula alba*).

* Author's address: 21 Golomb Ave., Haifa, Israel.

This brief communication concerns three cases of allergic respiratory reactions to *Phytophthora infestans* developing as a "false-mildew" in potatoes and cabbage. *Phytophthora infestans* (6, 7) belongs to Peronosporales-Ordo of Oomycetes of the Eumycotina-Subdivisio. This Class of Oomycetes (5) is one of the very important representatives of Eumycotina, concerning the evolution of Molds, their change from water-life into land-life, from hydrochorean to anemochorean propagation, with all the changes in the fructification organs and their adoptibility to their parasitic life.

Phytophthora infestans was a very important agent of epidemics of a potato-disease due to hunger and starvation in Middle-Europe during 1845-1850, but since that time, with the help of some fungicides, this potato-disease has disappeared, with the exception of a few neglected agriculture areas. This kind of Mildew, caused by some Peronosporales, is noted as "false-mildew", whereas the "true-mildew" is produced by *Erysiphales* belonging to the Ascomycetes-Class.

CASE REPORT

D. M., female, 29, resident of an Arabic village in Western Galilee has suffered from Asthma bronchiale and Rhinitis vasomotoria since childhood. For a period of one year she received hyposensitisation treatment against Molds and House-Dust as was indicated by the intracutaneous test results. Her condition improved following the treatment, but suddenly she became worse, attacks of Asthma bronchiale occurred more frequently and more severe than previously. She appeared in my clinic completely exhausted in a miserable condition. Upon questioning her about any changes in her environment, she replied that she slept in a room where she stored potatoes, and that perhaps this was the cause of her poor condition.

Her child, D. A., a nine year old boy, also an allergic atopic patient, was under my regular control because of Asthmatic bronchitis and Rhinitis vasomotoria. He was not given any hyposensitisation-treatment, but received only symptomatic antiasthmatic and antiallergic drugs and got along very well with this treatment. However, from the moment the potatoes were brought into their home, he started to feel very badly and his coughing and wheezing symptoms became almost unbearable. During his vacation he went to visit his relatives in Jerusalem and he felt very well and comfortable there. After returning home he developed the same symptoms. The mother suspected the potatoes as being

the cause of his poor condition. This suspicion was confirmed by an incident: a neighbor of theirs, also suffering from respiratory allergy, complained of very troublesome attacks, whenever he approached the room where the potatoes were kept.

The child, D. A. was examined. All the results of the examination were negative, including X-ray, Blood examination, Blood chemistry, Urine etc. Eosinophiles in peripheral blood were 11 per cent.

The neighbor, S. M., 32, a schoolteacher was also examined and except for +++— reaction to Housedust, all the results were negative. Eosinophiles in the peripheral blood were 13 per cent.

In the three cases we suspected that potatoes were the cause. From the previous history we could not find any hypersensitivity reaction to potatoes, neither as food nor as a plant growing in the fields of this village. This fact prompted us to examine mycologically the suspected potatoes of both houses. The potatoes examined were knobby, rotten, foul smelling and shrunk. The mycological examination revealed an infestation with *Phytophthora infestans*.

In all these three cases we used a provocative nasal-test (8) with the suspected material and immediately all these three patients felt respiratory troubles, wheezing, coughing and increased secretion from the nose. This provocative nasal test was performed with a cotton swab, being dipped in the suspected material and put afterwards into the nose for 5 minutes in a close contact with the mucose of the nose. For the control we used the physiologic solution *only* and this did not give any reaction to the patients. In the provocative nasal test with the suspected material we were able to find in the secretion of the nose a great number of Eosinophiles 30, 42, 21, respectively.

DISCUSSION

It was evident in the three cases that the increased allergic respiratory disturbances were caused by spoiled potatoes; no other agent could be responsible for it. All three patients are atopic individuals. The only positive result of the blood examinations was the increased Eosinophiles of the peripheral

blood, in all three cases: 11 per cent, 17 per cent and 13 per cent, respectively.

Unfortunately we could not confirm this fact by immunological and serological test, neither was it possible to perform any skin because of lack of appropriate antigenic material. Only the provocative nasal test proved an allergic reaction. Our hypothesis was based solely on the presence of *Phytophthora infestans* on the examined potatoes. We could not find any traces of Ascomycetes, Erysiphales, which usually cause a "true mildew" in this material.

In conclusion, we have reported three cases of atopic persons whose asthmatic attacks were aggravated as a result of the presence of the infested potatoes by *Phytophthora infestans*. After removing the potatoes from both houses, remarkable relief for the suffering patients was noted.

It would appear from this brief report, that a comprehensive knowledge of mycology in order to reveal the responsible agent of mildew in the environment of a patient is necessary.

SUMMARY

Three cases of asthmatic-atopic patients suffering from exacerbations of asthmatic attacks caused by spoiled potatoes in their environment are presented. The mycological examination revealed the presence of *Phytophthora infestans* which initiated the "false-mildew" change in the potatoes. The provocative nasal test proved the allergic reaction in these patients. The need of a thorough mycological investigation and its importance in such cases is discussed.

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