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RESPONSE TO LETTER

Emerging Allergens: How Proallergenic Activity Disrupts Epithelial Barriers [Response to Letter]

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Dear editor

We appreciate the interest of Wie and Xie for our paper titled "Potential Proallergenic Activity of *Tranzschelia pruni-spinosae* and *Phragmidium rubi-idaei* in vitro Studies".[1,2] Since about 30% of patients with allergies or asthma are unaware of the allergens causing their sensitization, identifying new potential fungal allergens could have important practical implications.

Our research was conducted as part of the project "Microscopic phytopathogenic fungi – biochemical characteristics and potential impact on human allergy development", funded by the National Science Center in Poland (No. 2019/35/B/NZ6/00472). In this project, we investigated eight microfungal species to evaluate their ability to induce pro-inflammatory and pro-allergenic responses in both in vitro and in vivo models. Additionally, we examined the composition of proteins (proteomics), carbohydrates, and fatty acids in the fungal extracts obtained. We agree that including an additional positive control, such as *Alternaria alternata*, could have been beneficial. However, for this pilot study, we chose to use ovalbumin, a well-known asthma inducer in mice, to compare its effects with those of our fungal extracts. We are very grateful for this suggestion.

In the mouse study, we used two doses of fungal extracts—one non-toxic and one subtoxic—for inhalation, considering the development of acute and chronic asthma in the animals.[3–5]

To date, based on this project, we have published or submitted papers to editors, which are listed in the References.[2–7]

We are currently continuing this research with the newly funded project "Microscopic phytopathogenic fungi as a potential cause of allergic reactions in humans - identification of the most allergenic fungal proteins for future allergy diagnostics", supported by the National Science Center in Poland (No. 2024/55/B/NZ5/00946). We will now explore which specific protein fractions of previously studied fungal extracts trigger proinflammatory and proallergenic responses. We will also examine whether patients diagnosed with asthma but without an identified allergen produce antibodies that recognize individual fungal fractions. If they do, it will provide evidence that our fungi can cause allergies in humans. Ultimately, we will identify the precise protein composition of the fungal fractions recognized by patients' IgE antibodies. This will enable us to advance our research toward commercial application—specifically, introducing a new protein standard for allergy diagnostics.

In conclusion, we appreciate your interest in our work and for highlighting potential new targets that could broaden our understanding of the allergenic properties of novel fungal extracts parasitizing common plants. We also hope that our explanations have helped clarify our research.

Data Sharing Statement

Data sharing not applicable to this communication as no datasets were generated or analysed during the current study.

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Author Contributions

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Disclosure

The authors declare no conflicts of interest.

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