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Short Review Open Access

phenomenal and it occurs more often after the external administration into skin or mucous membranes than after oral administration [9,13]. Allergic reactions to propolis usually occur as contact dermatitis after topical administration, although there are some reports of propolis allergy manifested as rhinitis, conjunctivitis, inflammation of the mucous membranes of the mouth and ulcers, bronchospasm with shortness of breath and wheezing, associated with fever, urticaria, headache, nausea [13]. In 2004 the case of laryngeal edema and anaphylactic shock after topical application of propolis in acute inflammation of nasopharyngeal cavity was also described [14]. To World Health Organization database of monitoring side-effects only 29 adverse events after propolis were reported for the period 1986-2006.

Allergy to Propolis in Beekeepers

Initial reports of allergic reactions to propolis were reported from beekeepers, as well as musicians and artists that modulate figures with wax [15,16]. The first case of allergic contact dermatitis after propolis was published in 1915 and described a beekeeper who had skin lesions on his hands. Since then, propolis is recognized as an occupational contact allergen mostly in beekeepers as they are an occupational group, the most exposed to allergens from propolis. Review of the world literature indicates that ¼ people allergic to propolis are beekeepers.

A study conducted by Münstedt [17] on the German population of beekeepers indicates that 3.6% of respondents are allergic to propolis (37 of 1051 beekeepers). More than 72% of them are allergic to other substances (21 of 37 beekeepers who are allergic to propolis). Reactions to propolis appear after 5 to 48 hours (mean time 11 hours). Side effects lasted from 5 hours to 20 days (mean 5 days). The study confirmed that propolis may cause not only a type IV hypersensitivity reaction, but also systemic reactions associated with immediate-type hypersensitivity. The most common skin reactions after propolis is itching, burning, urticaria, local rash [17,18]. An interesting thesis has been presented in this study that the use of solvents (mainly ethanol) may have influence on the development of allergy to propolis. The authors suggest that this hypothesis can explain the transport of antigen into the deeper layers of the skin, which can lead to hypersensitivity. This hypothesis should be confirmed in future studies [9,17,18]. Authors point out some factors correlated with the occurrence of propolis allergy. Contact allergy to propolis was significantly associated with lung diseases and other allergic reactions. According to this study reactions to bee stings did not correlate with allergy to propolis.

Illg and Sanokowska stated that the percentage of beekeepers allergic to propolis in Malopolska region in the South of Poland is 4.04% [19].

In another study on Polish farmers was shown that allergy to propolis was the reason of allergic contact dermatitis in 1 case (0.76%=1/132 farmers). Peru balsam was the reason of allergic contact dermatitis in 10 cases (7.6%=10/132 farmers) [20].

Spiewak reported that propolis was the reason of occupational dermatoses in Polish farmers in 2 out of 101 farmers (2%) [21].

A study conducted by Basista and Filipek on Polish population of beekeepers indicates that 17 out of 558 (3.05%) beekeepers were allergic to propolis. There was no report on concomitant allergy to propolis and other bee products. Only 14 of 2205 (0.63%) family members, using propolis as therapeutic agent, reported propolis allergy. Factors, which can have an influence on the occurrence of allergy, are allergic diseases (for example atopic allergic dermatitis) or other allergies for different allergens which induce eczemas [22]. The prevalence of propolis allergy in beekeepers and farmers are gathered in table 1.

Conclusion

Data from literature indicate the possibility of an allergic reaction while using propolis, but much more frequently reported are cases of hypersensitivity to propolis and its preparations used externally. Propolis given *per os* is considered as a non-toxic product to humans, although in the literature some cases of hypersensitivity after oral administration are described.

Allergy to propolis is not a common phenomenon, but there are groups of greater risk of sensitization like beekeepers and their family members who are the most exposed to contact to propolis and its allergens. Sensitization in this group ranges from 0.76 to 4.04%. Beekeepers are more affected with propolis allergy than healthy population (0.64%-1.3%), but are not more affected with propolis allergy than dermatological patients cured earlier because of allergic dermatoses (1.2%-6.7%) [22].

References

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