

## Microorganisms in Fresh and Stored Bee Pollen Originated from Slovakia

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**Abstract :** The aim of the study was to test the storage of bee pollen at room temperature and in cold store, and to describe microorganisms originated from it. Fresh bee pollen originating in West Slovakia was collected in May 2010. It was tested for presence of particular microbial groups using dilution plating method, and divided into two parts with different storage (in cold store and at room temperature). Microbial analyses of pollen were repeated after one year of storage. Several bacterial strains were isolated and tested using Gram staining, for catalase and fructose-6-phosphate-phosphoketolase presence, and by rapid ID 32A (BioMérieux, France). Micromycetes were identified at genus level. Fresh pollen contained coliform bacteria, which were not detected after one year of storage in both ways. Total plate count (TPC) of aerobes and anaerobes and of yeasts in fresh bee pollen exceeded 5.00 log CFU/g. TPC of aerobes and anaerobes decreased below 2.00 log CFU/g after one year of storage in both ways. Count of yeasts decreased to 2.32 log CFU/g (at room temperature) and to 3.66 log CFU/g (in cold store). Microscopic filamentous fungi decreased from 3.41 log CFU/g (fresh bee pollen) to 1.13 log CFU/g (at room temperature) and to 1.89 log CFU/g (in cold store). In fresh bee pollen, 12 genera of micromycetes were identified in the following order according to their relative density: *Penicillium* > *Mucor* > *Absidia* > *Cladosporium*, *Fusarium* > *Alternaria* > *Eurotium* > *Aspergillus*, *Rhizopus* > *Emericella* > *Arthrinium* and *Mycelium sterili*um. After one year at room temperature, only three genera were detected in bee pollen (*Penicillium* > *Aspergillus*, *Mucor*) and after one year in cold store, seven genera were detected (*Mucor* > *Penicillium*, *Emericella* > *Aspergillus*, *Absidia* > *Arthrinium*, *Eurotium*). From the plates designated for anaerobes, eight colonies originating in fresh bee pollen were isolated. Among them, a single yeast isolate occurred. Other isolates were G+ bacteria, with a total of five rod shaped. In three out of these five, catalase was absent and fructose-6-phosphate-phosphoketolase was present. Bacterial isolates originating in fresh pollen belonged probably to genus *Bifidobacterium* or relative genera, but their identity was not confirmed unequivocally. In general, cold conditions are suitable for maintaining the natural properties of foodstuffs for a longer time. Slight decrease of microscopic fungal number and diversity was recorded in cold temperatures compared with storage at room temperature.

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