



Invited presentation

Improving the approach of pollen analysis of honey

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Abstract

Honey is a valuable food product that has high nutritional and medicinal properties. The honey value depends directly on its quality and, most importantly, naturalness. The main indicator of the naturalness of honey is the content of pollen grains in honey plants, according to the National Standard DSTU 4497: 2005 “Natural honey. Technical requirements” and the Technical Regulation “Requirements for honey” № 330 dated 19.06.2019. The gist of the pollen analysis approach, which is given in paragraph 10.3 “Method of pollen analysis” DSTU 4497: 2005, is to identify the presence of pollen grains and further identification of their botanical incorporation. This technique involves defining the contents of a centrifuged precipitate drop of honey solution with an alcoholic solution of fucsin with a mass fraction of 10%. Pollen grains are also dyed during defining. The disadvantage of this method is that the pollen grains and the surrounding area are dyed evenly in bright pink or dark red colour, which complicates their visualization and makes it virtually impossible to further identify. In this regard, we aim to improve the method of dyeing pollen grains, eliminating the shortcomings of the standard method. To achieve this goal, the study was conducted in the form of using working solutions of fucsin of different concentrations: №1 (1:20), №2 (1:15) and №3 (1:9) – the main is an alcoholic solution of fucsin 10%); №4 (0.5:9), №5 (0.2:9) and №6 (0.1:9) – the main working solution of fucsin №3. It was found that the best pollen grains are visualized while using a working solution № 6: the grain is dyed in a monotonous pink colour, exine and intina - in a bright pink colour, the field around the grains - pale pink. The intense pink colour of the proposed method of exine and intina is that allows you to effectively identify the botanical affiliation of pollen grains.

Keywords: honey, pollen grains, pollen analysis, naturalness, quality, fucsin

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