Pollen Count and Analysis of Store Honey and NC Honey Samples for Content and Purity

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Bees represent a vital part of our agricultural system, supporting by their pollination activities approximately one-third of the food consumed by humans. Despite colony collapse disorder, according to the USDA, 157 million pounds of honey was produced in 2015 and the number gradually increases each year. An important question becomes what is the purity and the nature of the honey that is sold to consumers. To test our hypothesis, three different kinds of honey from three different sources were evaluated. The first series of tests involved identifying honey characteristics such as, texture, taste, presence of organic materials such as bee parts and bees wax, and purity testing via burning the honey (if the honey burned, it was pure due to a low concentration in water). Following the characteristics testing, the honey was diluted via Ethanol, centrifugation, and acetolysis to retrieve the pollen from each sample. Our results concluded that the retailed honey had a less sticky texture, didn't burn, and dispersed in water. The honey from the retailer contained no pollen, therefore it is has been ultrafiltered to remove the pollen. The Robeson County and Raleigh honeys were very sticky in texture, burned, and didn't mix readily with water, all indicating purity. These honey samples also had a high concentration of pollen, resulting in 19,800 pollen/gram of honey in the Robeson County and 92,000/gram in the Raleigh honey. Work continues on identifying the specific pollen taxa in these honeys.

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