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Research Project: [Improve Nutrition for Honey Bee Colonies to Stimulate Population Growth, Increase Queen Quality, and Reduce the Impact of Varroa Mites](#)

Location: [Honey Bee Research](#)

Title: Swedish Scientists have Solved Honey's Enigma

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Submitted to: American Bee Journal

Publication Type: Trade Journal

Publication Acceptance Date: October 2, 2009

Publication Date: December 20, 2009

Citation: Vasquez, A., Olofsson, T., Sammataro, D. 2009. Swedish Scientists have Solved Honey's Enigma. American Bee Journal, Vol. 149:1169-1172.

Interpretive Summary: Lactic acid bacteria (LAB) are considered beneficial because they are commonly found in healthy individuals and are commercially important for their use in dairy products and probiotics, giving the host beneficial effects when consumed. Now these bacteria have been found in honey stomachs of the honey bee, *Apis mellifera*; a unique flora that appears to have coevolved with the honey bees. The health of our most important pollinators has come into focus during the last few years, because of yet unexplained conditions and diseases that threaten bees. This novel bacterial flora could potentially be of crucial importance for the well-being of honey bees, their pollination potential, and their honey production. The bacteria from bees in Sweden are exactly the same as in bees from Arizona; in addition, a new bacterium was isolated from the Arizona bees. Future work will explore the association of these bacteria to honey bee health and diet and the use of antibiotics given to bees, to see what affect they have on these beneficial bacteria.

Technical Abstract: Recently, it was discovered by Olofsson and Vasquez (2008) that a novel flora composed of lactic acid bacteria (LAB) of the genera *Lactobacillus* and *Bifidobacterium*, exists in the honey stomach of the honey bee *Apis mellifera*. The twelve different flora members varied numerically with the sources of nectar and the presence of other bacterial genera within the honey bee. We found that the majority of these good bacteria, (the honey stomach LAB), are viable in fresh, uncapped honey that is not more than a couple of weeks old. Further research showed that these new LAB flora could be involved in the production of bee bread, which is believed to be at least partly manufactured by lactic acid fermentation. With further studies we hope to be able to understand more of the importance of this bacterial flora, its impact on the honey bee immune system, and on their different foods.

Last Modified: 09/13/2010