

**Title of Presentation:** Feeding sugar syrup and sugar candies with high levels of HMF (Hydroxymethylfurfural) is bad for honey bee vitality

**Authors:** Violeta Santrac, Biljana Pecanac, Radivoje Maksimovic, Zlatko Tomljanovic, Dennis vanEngelsdorp

**Poster only or spoken presentation preferred:** (Spoken)

**Name of the most relevant symposium:** Advancing bee health

**Address of first author only:** Public Veterinary Institute of Republic of Srpska “Dr Vaso Butozan” Banja Luka, Branka Radicevica 18, 78000, Banja Luka, RS, Bosnia and Hercegovina

**E mail:** violeta.santrac@virsvb.com

**Abstract:**

Feeding honey bees artificial carbohydrates is an important part of conventional and organic beekeeping management. These feeds can influence honey bee colony vitality. Enzymatic processing of artificial feed can result in different end products when compared to the breakdown products resulting from bees breaking down natural feeds. These products could have a negative effect on bee health. One breakdown product of particular concern is HMF. For this reason there is a need to standardise HMF (*hydroxymethylfurfural*) quantification methodologies. Using data obtained from previous feeding studies, we used the Winkler quantitative analysis to quantify HMF levels in products for feeding the bees before they were used. Our results found that levels of HMF in stored bee feed regularly exceeded the levels that are considered tolerable in honey. In one case that levels HMF were measured at e 222, 5 mg/kg. It is unclear what effect this level of HMF will have on bee health. Further studies quantifying negative effects are badly needed. If these levels do have a demonstrable negative effect we propose that concentrations of HMF should be required on the labelling of all bee feeds. Such labelling should standardized and include recommendations for product storage and use.

---

Violeta Santrac, Biljana Pecanac, Radivoje Maksimovic, Zlatko Tomljanovic, Dennis vanEngelsdorp: *Feeding sugar syrup and sugar candies with high levels of HMF (Hydroxymethylfurfural) is bad for honey bee vitality*; Sixth European conference of Apidology, Murcia, 9-11. September 2014, Spain, Book of abstracts, pg. 130