

## THE INFLUENCE OF MANNAN OLIGOSACCHARIDES ADDED POLEN ON BRED AREAS

### INFLUENȚA MANANOLIGOZAHARIDELOR ADĂUGATE POLENULUI ASUPRA ARIILOR CU PUIET

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*Probiotics and prebiotics (oligosaccharides and acidifying agents) appeared in the place of the old antibiotics. Mannan -oligosaccharides from Saccharomyces cerevisiae (beer-yeast) are used with success in the nutrition of pigs, chickens and rabbits. The beer-yeast is used also in the bee family's foraging with a major success. The bee-bred which is the protein source for the honey bees contains also many species of yeast. Our experiment of adding mannan -oligosaccharides in the energetic and protein feed and of using the artificial bee-bread in the place of pollen shows that those methods didn't lead an increased performance of the frozen pollen, honey energetic and protein feed.*

**Keywords:** manan- oligosaccharides, bee families, feed, pollen

#### Introduction

Mannan -oligosaccharides are a group of oligosaccharides which are not digested by digestive enzymes action. It comes in the gut unmodified and attaches the pathogenic potential bacteria due to the specific receptors for carbohydrates. In this case, the bacteria is carried, blot out from the gut and it don't fix on the gut mucosa. The addition of manna -oligosaccharides in the alimentation of pigs, chickens and rabbits in a proportion of 0.05-0.1 % has some good effects through bio-stimulation and increases of the resistance to bacterial diseases. This type of glucids are extracted from the cell-wall of beer-yeast (*Saccharomyces cerevisiae*), one of the products used on pollen substitutes arising with good results. The yeasts from many species are also present in the bee-bread (the natural protein reserve of the honey bees, bonded in the combs, provenance from the fermented pollen), but are not present in the fresh pollen. (Stoica et al, 1999).

## Materials and Methods

At the beginning of the wintering period it was elected in the same hive-garden a number of 24 bee families with an equal population, which were occupying 6 standard frames/ family.

The bee families were divided into 4 lots of 6 families / lot. The wintering provisions consisted in multi-floral honey in 14-15 kg quantity / family. The described experiment was made during the spring feeding with solid feed (cakes). The usual forage for the bees (Bura and Patruica ,2003 , Somerville, 2005.) was a mixture between honey and frozen pollen with crude protein of 10 %. In the control lot, this mixture was given unmodified. In the experimental lot A, to the mixture was added 0.1 % manna -oligosaccharides In the experimental lot B, to the mixture was added 0.2 % manna -oligosaccharides. In the experimental lot C it was used fermented pollen out of the hive in the place of pollen (artificial bee-bread). The given quantity of feed was 750 g / bee family. Feeding was made in 13 of February, 2008, and the brood quantity was measured in 16 of March, 2008.

## Results and Discussion

The mean brood quantities (dm<sup>2</sup>) were: in the control lot 31.65 dm<sup>2</sup> ,in the lot A 30.62 dm<sup>2</sup> ,in the lot B 28 dm<sup>2</sup> ,in the lot C 30.125 dm<sup>2</sup> .

Although the biologic effect of pollen on the brood quantity is not improved through its fermentation or manna - oligosaccharides adding, their effect on the life period of the bees and their effect when these are added on pollen substitutes should be tested.

## Conclusions

1. The performance of bee families in brood rearing are not increasing after adding of mannan-oligosaccharides in energetic and protein feed honey and pollen base.
2. The performance of bee families in brood rearing are not increasing after the pollen fermentation before being used on energetic and protein feed preparation.

## References

1. Bura M., Pătruică S, 2003., Nutriția și alimentația albinelor, Editura Agroprint, Timișoara.
2. Somerville D.,2005 *Fat bees – skinny bees – a manual on honey bee nutrition for beekeepers*; Australian Government, Rural Industries Research and Development Corporation.
3. Stoica I., Stoica L., Pana C. , 1999, Aditivi furajeri; Editura Coral Sanivet, Bucuresti.