UNIVERSIDADE ESTADUAL DE MARINGÁ
Programa de Pós-Graduação em Zootecnia
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Bee Research Group

Life span of Africanized honey bees supplemented with polyunsaturated fatty acids, palmitic fatty acid, isolated soy protein, beer yeast and mixed supplement

Maria Josiane Sereia; Vagner Alencar Arnaut de Toledo*; Antonio Claudio Furlan; Patrícia Faquinello; Renata Carolina Mesti; Satilla Emanuele da Silva de Castro; Bruno Lala Silva
*abelha.vagner@gmail.com

Introduction

This research was carried to evaluate the nutritional quality of five supplements elaborated with linseed oil, palm oil, isolated soy protein, beer yeast and mixed supplement through the assessment of consumption, determination of preference, mortality rate and increase in average longevity of Africanized honeybees confined in cages to 32 degrees and relative humidity 70%.

Materials and methods

The tests consisted in transferring 125 newly emerged bees from honeycombs into cages with 9x6x15cm (Figure 1).

Figure 1. Identificated cages, each was supplied with water, a piece of beeswax sheet, sugar syrup and water (1:1) and add test supplement (3g)

Table 1. Treatments and supplements

Treatments	Supplements
1	Linseed oil, palm oil, beer yeast and isolated soybean protein
2	Linseed oil
3	Palm oil
4	Isolated soybean protein
5	Beer yeast and isolated soybean protein
6	Pollen
7	Sugar and water – no proteic supplement
Cages	21

The preference test of supplement was conducted offered simultaneously in the same experimental cage. Every three days, the leftovers were recorded and a new supplement was put on (Figure 2).

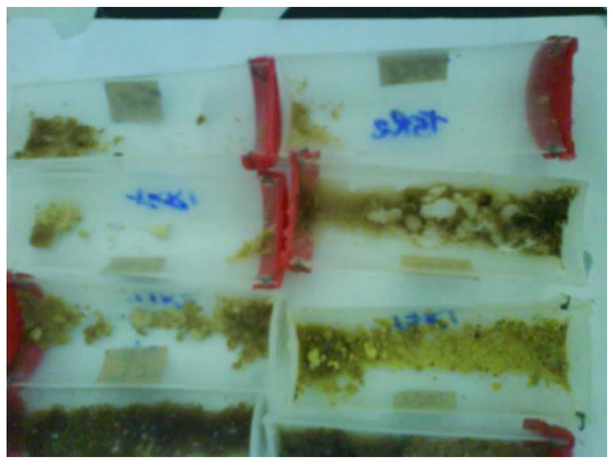

Figure 2. supplement remainder for preference test during longevity test

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Results

The quantities consumed from each supplement differ with minimum values of 4.18g (linseed supplement) and maximum 11.12g for mixed supplement. In preference test, the minimum was 1.74g for linseed supplement and maximum value of 4.05g (add yeast of beer) were different (Figure 2).

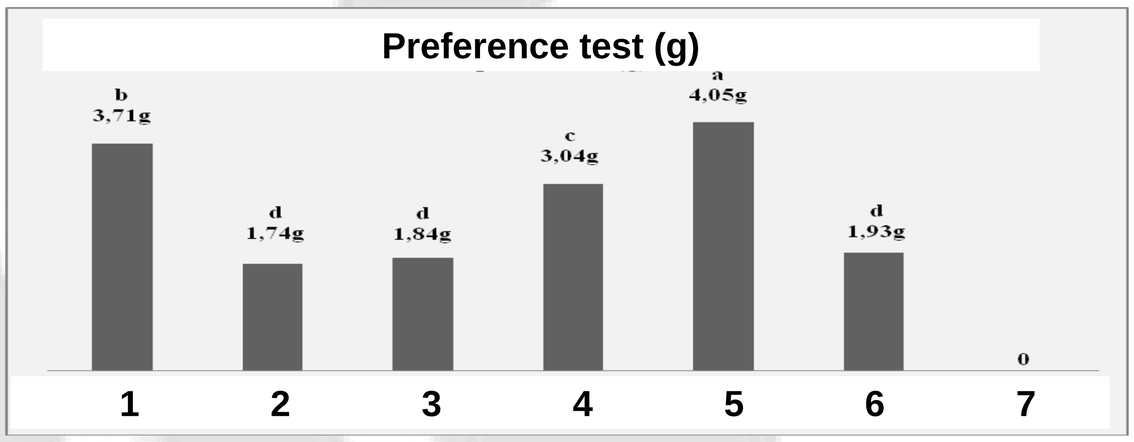

Figure 2. Mean of consumed supplement of each treatment until 30th day of life in confined Africanized honeybees fed with different supplementation

Supplements made with only one type of oil had very similar curves of mortality and high mortality rate ($p>0.05$) (Figure 3).

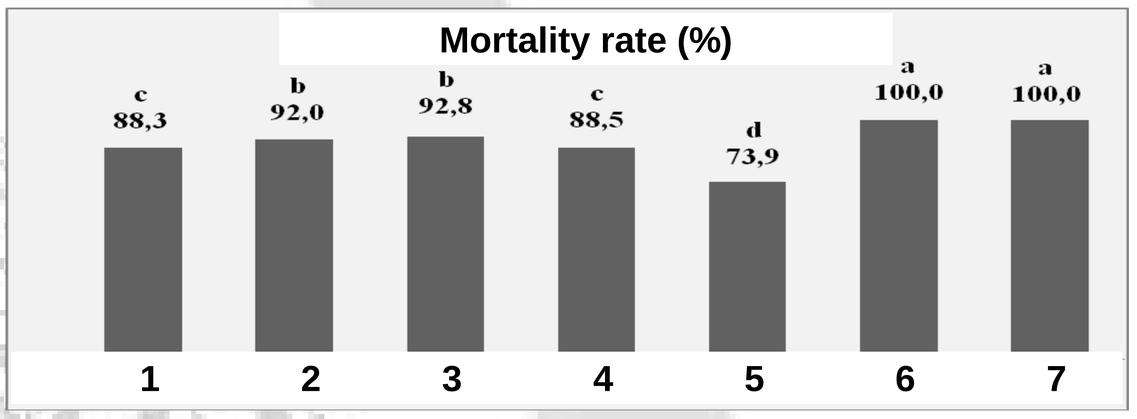

Figure 3. Mortality rate in confined Africanized honeybee fed with different supplementation

Supplements made with mixed sources of oil and protein for confined honeybees provided the greatest increase ($p<0.05$) in life span (Figure 4).

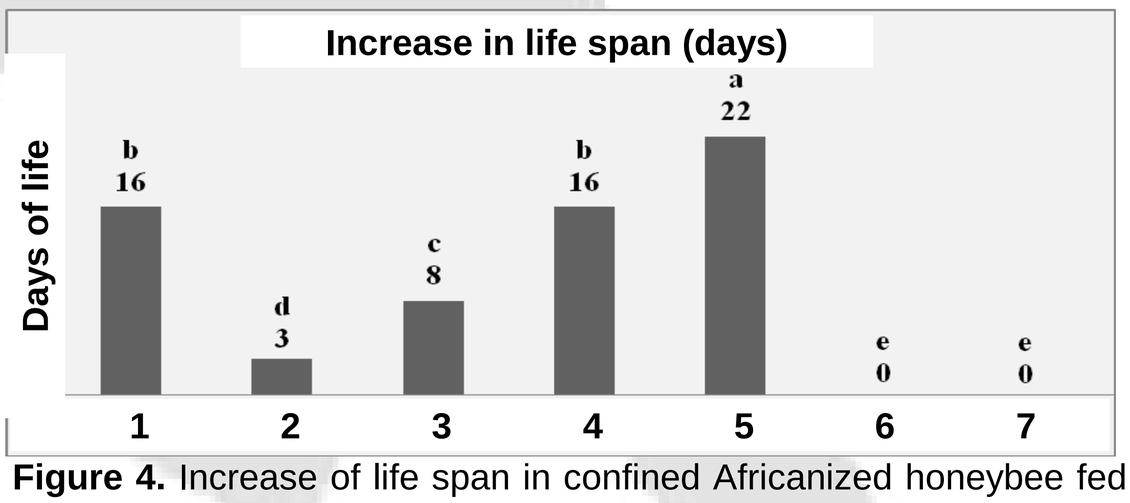

Figure 4. Increase of life span in confined Africanized honeybee fed with different supplementation

Conclusion

Supplements made with mixed sources of oils and proteins with confined honeybees provided the greatest increase in life span. Variations in fatty acids and proteins sources are desirable in supplements for Africanized honeybees nutrition.