Food and Nutrition Department
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Brazil

Comparison between *Apis mellifera* bee and stingless bee (*Tetragonisca angustula*) honey

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Introduction

Brazilian Beekeeping:

Traditional beekeeping

- *Apis mellifera (africanized bee)*

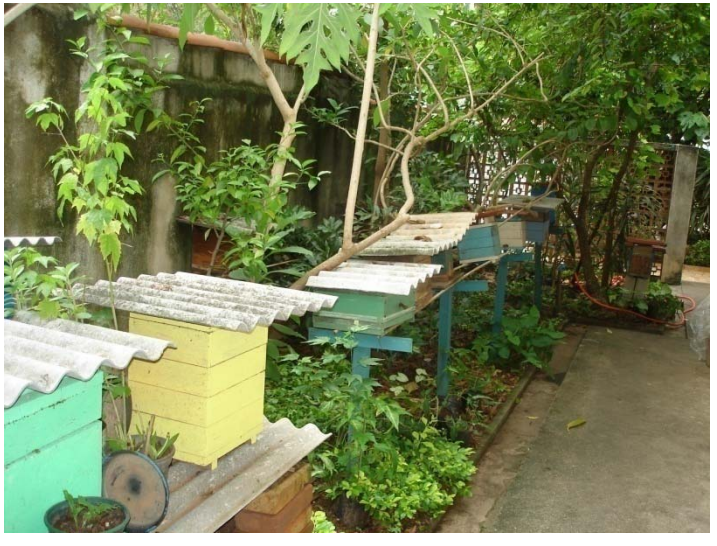
Meliponiculture

- Stingless bees: uruçu, jandaíra, mandaçaia , jurupá, tiúba and jataí.

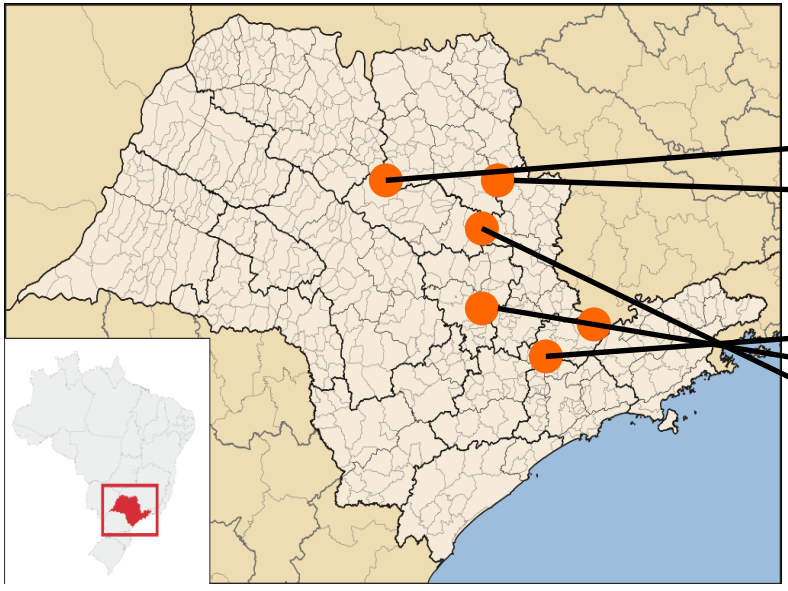
Diferences

Caractheristics	*Apis mellifera*	*Tetragonisca angustula* (Jataí)
Bee	 12-13 mm with sting	 5 mm Atrophiated sting From south of Brasil till México
Collecting honey	 ⇨ Protection and smoke	 ⇨ Siringe collection
Bee hive	 Honey combs	 Honey pots Hive entrance

Tetragonisca angustula (Jataí) bee



Material



Cities

LINS

AMPARO

PEDREIRA

GUARULHOS

MARÍLIA

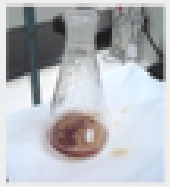
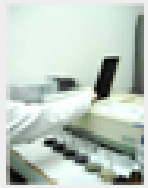
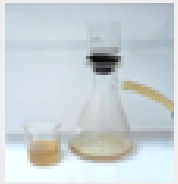
STO ANTONIO DE POSSE

6 paired samples

(Apis + Jataí)

Where they were collected

Methods

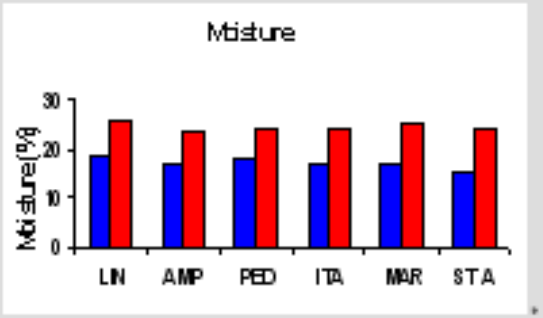
Physico chemical paramether	Reference	Picture/ methodology
Moisture **Refratometric method**	BRASIL, 2000; AOAC (item 969.38b)	
Reducing Sugar and Apparent sucrose **Fehling titrimetic method**	BRASIL, 2000; CAC- 1989 item 7.1 e 7.2 e BOGDANOV, 1997	 
Acidity **Titrimetic method**	BRASIL, 2000 e AOAC, 1990, item 962.19	
Hydroximethylfurfural and Diastase **Spectrophotometric method**	BRASIL, 2000; CAC- 1989 item 7.4	 
Insolubre solids **Gravimetric method**	BRASIL, 2000; CAC- 1989 item 7.7	
Minerals/ Ashes **Gravimetric method**	BRASIL, 2000; CAC- 1989 item 7.5	

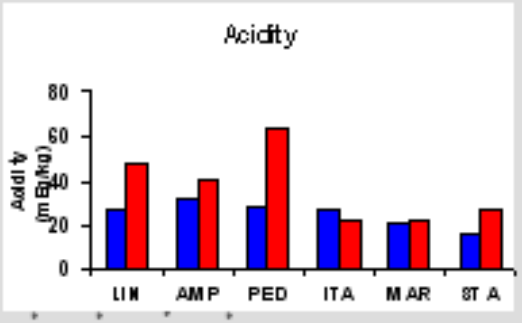
Result and Discussion

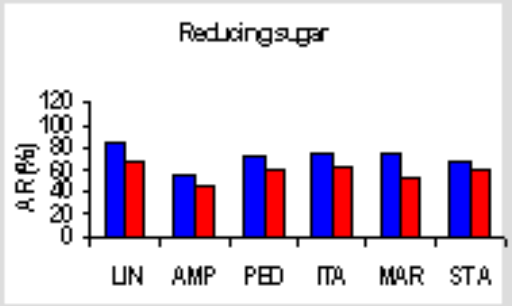
Apis *mellifera*

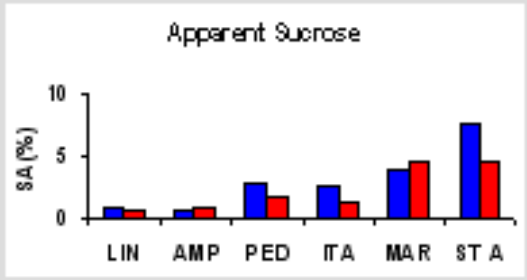
Tetragonisca angustula (jataí)

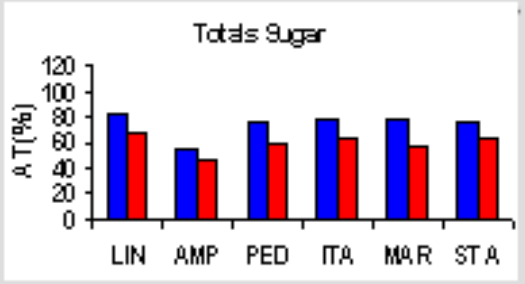
Comparison of results from *Apis mellifera* and stingless bee (*Tetragonisca angustula*) honey are presented at the following figures.

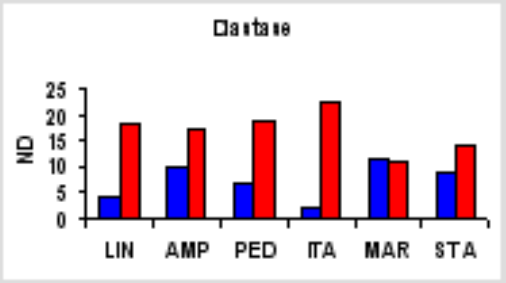


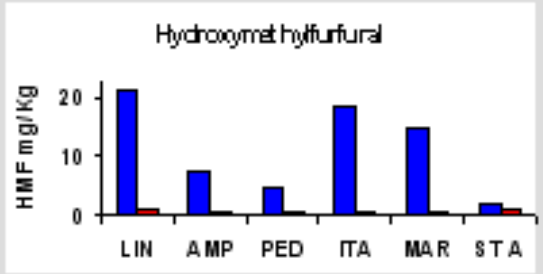


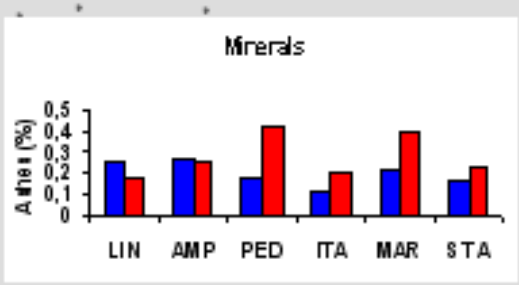


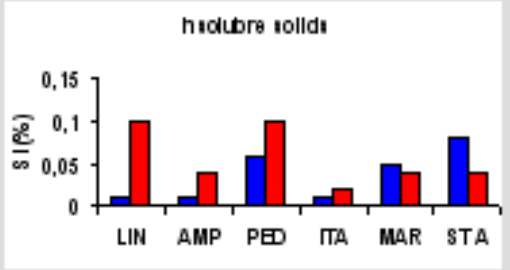












Each value: Mean ± SD of 3 replicates. Comparisons between the two honey types were made for each city using *t* Student test or Mann-Whitney test , when needed. * Statistically significant differences between *Apis and* Jatai e honey for each city ($p<0.05$).

Conclusions

- **Physicochemical analyses showed clearly the differences, statistically significative ($p<0.05$) between the honey samples of *Apis* and *Tetragonisca* in each locality.**

- **The paramethers: moisture, acidity and reducing sugars for jatai honey were not in accordance if we use the *Apis mellifera* Brazilian regulation. So, there is a need of a new regulation for stingless bee honeys**

We would like to recommend that there should be more scientific researches and publications about stingless bee honey

Thank you all...

- **Graziela Sousa (PhD student, USP)**
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- **Ortrud Monika Barth (PhD, FIOCRUZ)**
- **Alex Freitas (Biologist, FIOCRUZ)**
- **Fernando Barion and Ingrid Fang (Graduate students, USP)**

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