

Introduction

The minor components of honey (mineral components, flavonoids, amino acids, volatile compounds, etc.) are mainly responsible for the individuality of each kind of honey and the character of this nutraceutical food product.

The quality parameters are described in Directive 2001/110/EC of 21 December 2001 and are accepted in Europe as the minimum quality criteria that must be respected.

However, the value of honey as a functional food product is also supported by its biological activity that depends on its microcomponents.

The botanical and regional specificity could be demonstrated through the awarding of Appellations of Origin (PDO), aiming to highlight the quality of particular types of honey and increase their commercial value. This is a growing trend in European countries supported by a characterization of quality parameters such as HMF content, diastase activity, antioxidant activity, or mineral composition.

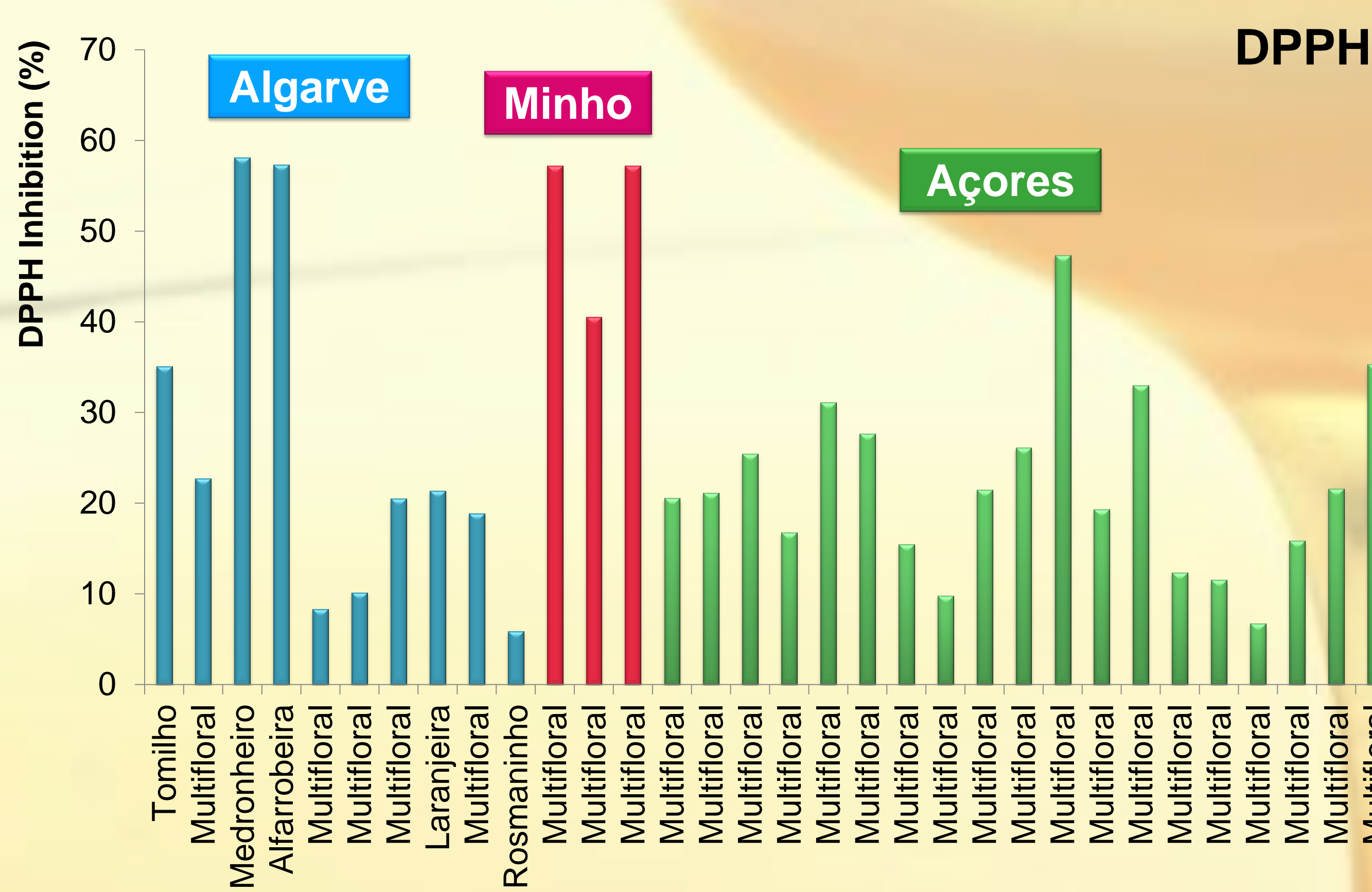
Objectives

The purpose of this work is to evaluate the antioxidant activity of portuguese honey obtained from different bothanical and geographical origins and to correlate this property with their physico-chemical characteristics.

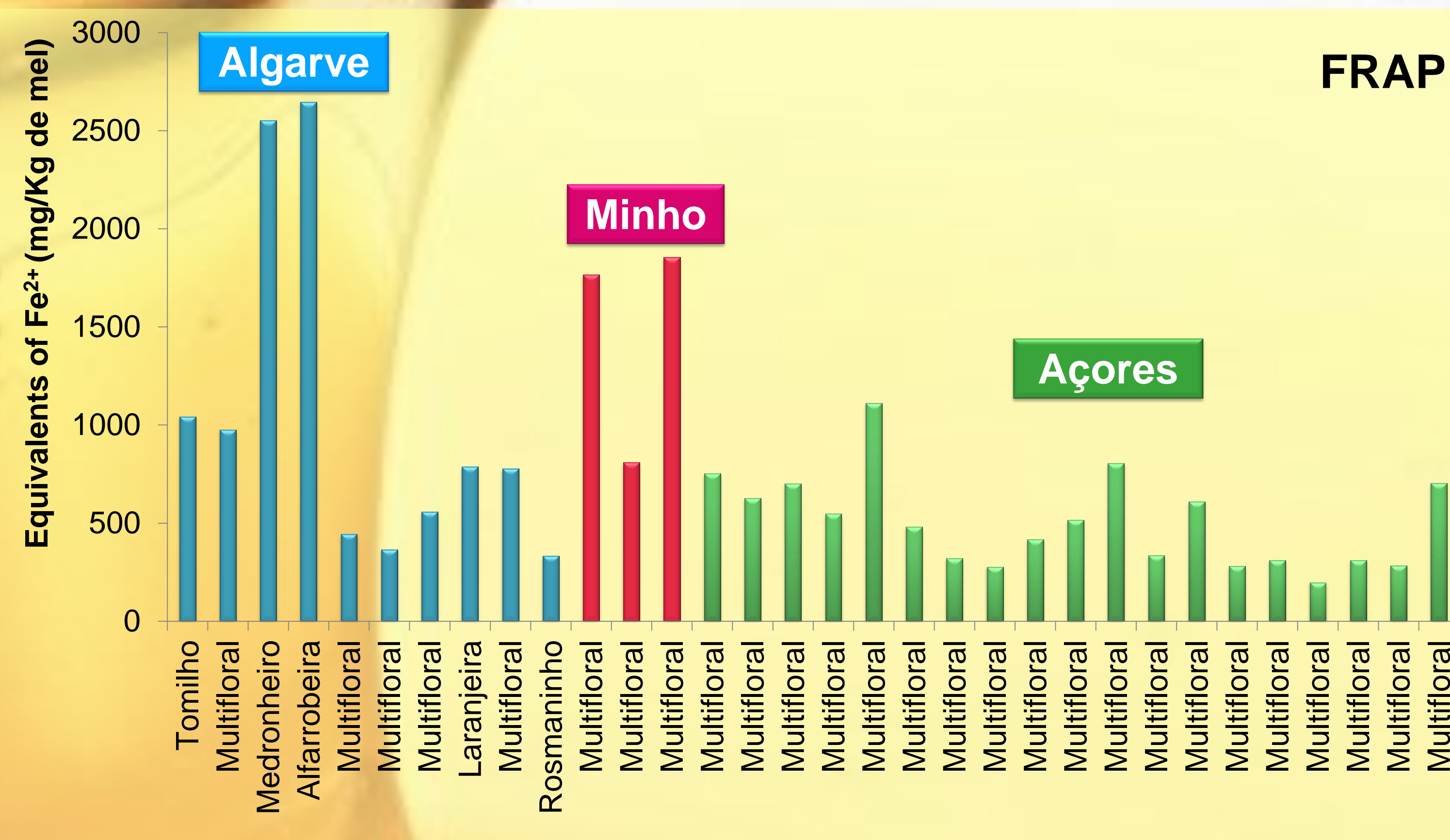
Methods

The honey samples were obtained from local producers and stored in the dark, at 20°C until analysis. The antioxidant activity was studied using three different tests: DPPH radical scavenging activity, ferric reduction antioxidant power (FRAP) and Folin-Ciocalteu reaction. Some physico-chemical parameters (free, lactonic and total acidity,pH, condutivity and water content) of the honey samples were also determined.

Results and Conclusions



- The highest DPPH scavenging activity was obtained for “Medronheiro” and “Alfarrobeira” honeys from Algarve and for multiflora honey from Minho with a strong contribution of “Eucalpto” e “Urze”.
- Most of the honey samples from Açores showed intermediate antiradicalar activity, with values of DPPH inhibition similar to the ones obtained for “Tomilho” honey from Algarve.
- One sample of multiflora honey from Açores had a DPPH inhibition higher than 40% indicating that this honey has the contribution of nectar from botanical species with a higher antioxidant content.



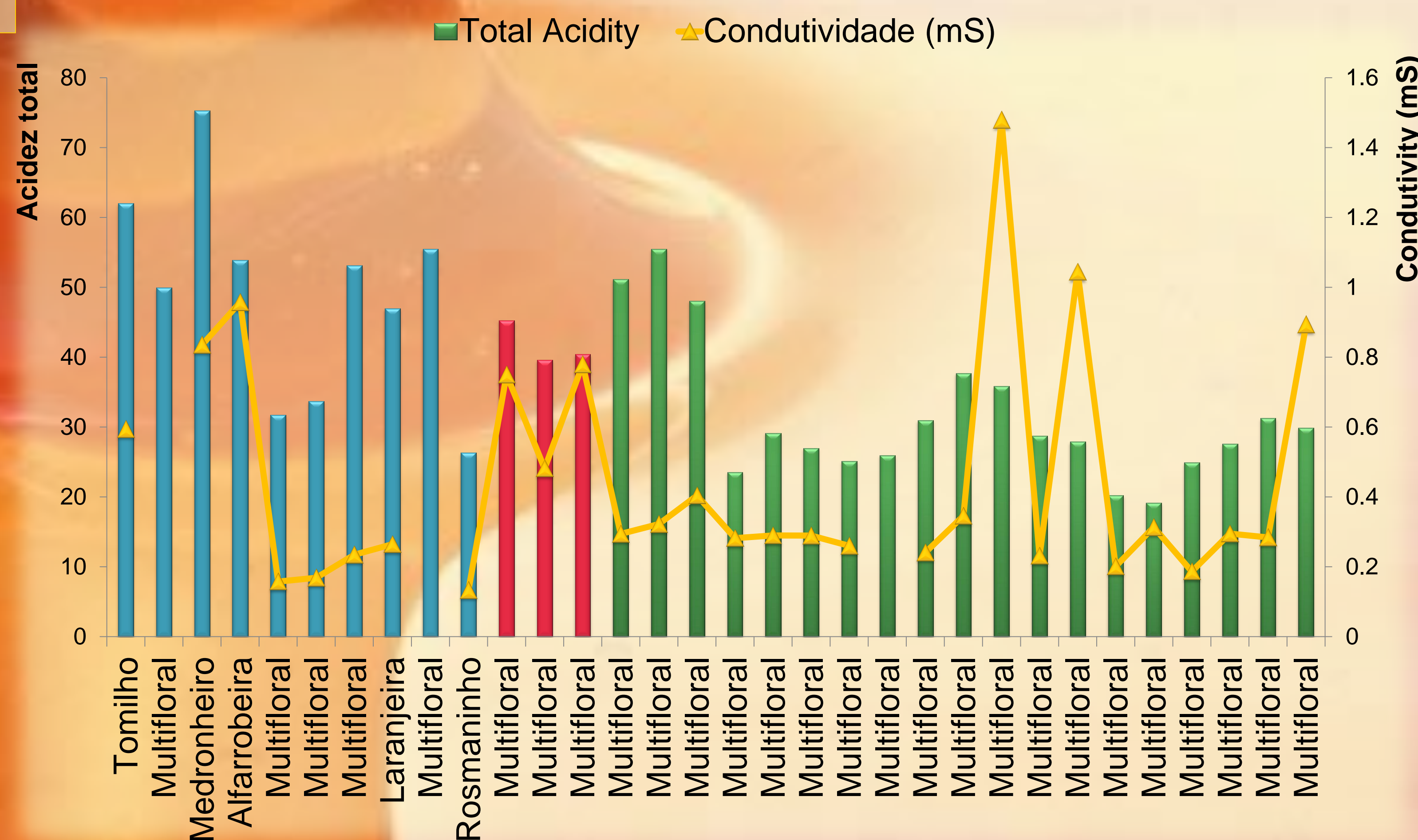
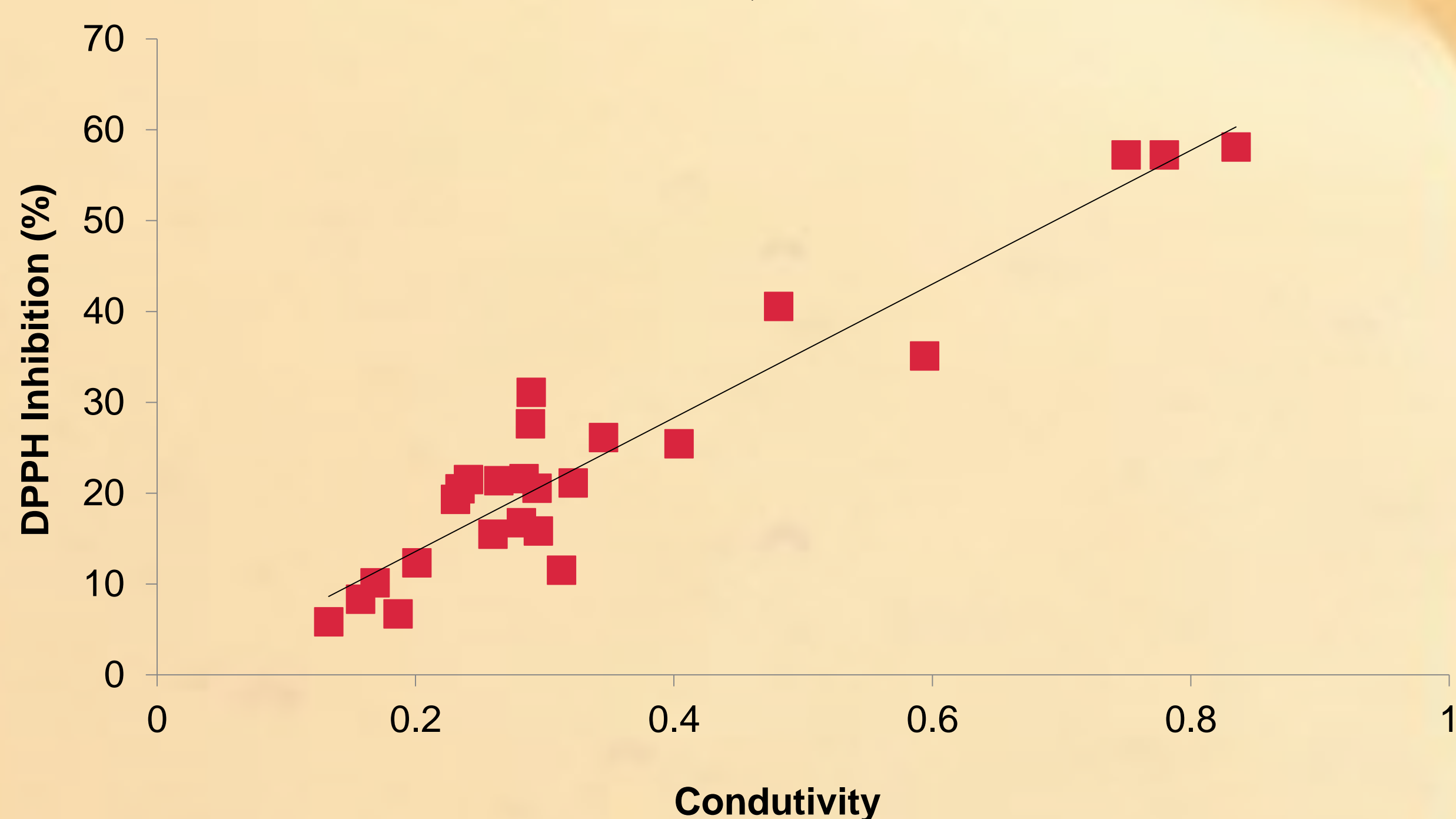
- The highest ferric reduction antioxidant activity (FRAP) was also obtained for “Medronheiro” and “Alfarrobeira” honeys from Algarve and for multiflora honey from Minho with a strong contribution of “Eucalpto” e “Urze”.
- The ferric reduction antioxidant activity (FRAP) of the honey samples from Açores was in general lower than the FRAP activity of “Tomilho” honey from Algarve.
- The behaviour of the different honeys in the Folin-Ciocalteu reaction (total phenolic compounds) was analogous to the behaviour in the FRAP reaction.

Water Content: 16,8 ± 1,3 %

pH: 3,6 ± 0,2 %

Correlation between Antiradicalar Activity/Conductivity

R=0,947



- Algarve honeys present a higher acidity when compared with honeys from Minho or Açores.
- Although “Medronheiro” and “Alfarrobeira” showed a higher acidity than other honeys from Algarve, bothanical origin seems to have less influence on this parameter.
- Conductivity is higher for darker honeys like “Medronheiro”, “Alfarrobeira” or “Urze”
- Conductivity and antiradicalar activity are strongly correlated parameters.