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PC29.	Nair Alua; Ana Balola; Celeste Serra	Antioxidant and Physicochemical Properties of Honeys from Algarve Region.

PC26. Evaluation of the effect of Hydrogen Peroxide (H_2O_2) in the antimicrobial activity of honey.

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Bee hive products such as honey, propolis and royal jelly have been extensively used in the past. Their use in Medicine dates back at least 4000 years, to Ancient Egypt where it was used for the treatment of wounds among other conditions. With the discovery of modern antibiotics in the early 20th century, the use of many effective products of traditional medicine was discontinued. Although modern antibiotics use has meant a decrease in mortality, its widespread use has led to the emergence of antibiotic-resistant bacteria and fungi decreasing the treatment options. This led to an increase research of antimicrobial activity of honey as possible alternatives at least for dermatological or wound applications.

Honey is a complex substance made up of hundreds of different compounds. Honey's antimicrobial activity was initially attributed to the high sugar content and low pH and later to the activity of glucose oxidase which transforms glucose and water into hydrogen peroxide and gluconic acid upon honey dilution, which is responsible for the antimicrobial activity in most honeys.

Monofloral heather (Erica sp.) honey samples harvested in Portugal according to European organic apiculture standards, were analyzed to test antibacterial activity against *Bacillus cereus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*. A catalase solution was added to honey samples to inactive the hydrogen peroxide and then the honeys were tested to see if there was still any antibacterial activity. It was found out that the presence of catalase induced a significant increase of the Minimum Inhibitory Concentration, suggesting that the antimicrobial activity of honey was mainly due to the presence of peroxide. The non-peroxide antimicrobial activity may be related with the concentration of phenolic compounds. In addition it was verified a significant interaction between the catalase effect and the different microorganisms.

Since antimicrobial properties of honey depend strongly on plant source and geographic origin, together with other factors such as climatic conditions, soil type, and beekeeper activities, the characterization of antimicrobial properties of honeys of diverse origins still appears to be a sound research priority to obtain a reliable data on this valuable beehive product for medical purposes.

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