

# 3<sup>rd</sup> International Conference and Exhibition on Food Processing & Technology

July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

## New trends in extraction methods of liquid sugar from date palm (*Phoenix dactylifera* L.) fruits

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In date syrup manufacturing, date fruits are mixed with a suitable amount of water with heating at a temperature greater than 50°C for about 1 h. These conditions are not satisfactory for extraction greater amount of liquid sugar (date syrup). In addition, overheating for an extended period of time could damage nutritious materials and also changes product's color. In this study, pectinase/cellulase treatments and sonication process were used to achieve maximum syrup extraction from a date variety (Reziz). Ultrasound was applied for improving the quantity and quality of extracted syrup. The following variables were examined: fruit/water ratio, mixture of enzymes, ultrasonic intensity and temperature. Date extract was concentrated by a rotary evaporator until 70% total solids to produce higher quality syrup. Physicochemical properties of each collected sample during process were evaluated. Rheological properties of syrup were evaluated at different temperatures and concentration. Results showed that sonication under the proper conditions (U2 at 20 kHz - 25% of power, 20°C and water/fruits ratio of 3/1) could lead to a higher extraction in a shorter time with a better physicochemical quality of syrup in comparison to enzymes and classical methods of extraction. Data indicated the possibility of employing ultrasound or enzymes (50 U of pectinase and 5 U of cellulase for 120 min at 40°C) with ultrasound processes for producing greater syrup amount highly desirable for use in food product development.

### Biography

Gamal A El-Sharnouby has completed his PhD from Al-Azhar University, Cairo, Egypt. He is the Professor of Food Science and Nutrition. He has published more than 25 papers in reputed journals and serving as an editorial board member of repute. He is member in many professional societies. He has attended more than 20 national and international conferences and scientific symposia. He has supervised many of the Masters and PhD students. He has worked as a scientific consultant for many food factories. He has participated in the development of many of the food standards. He has experience in food science and technology, functional food, natural pigments, food safety, fruits processing, determine the expire date of food for human consumption. He is a principle investigator in many food science and technology projects.

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