

similar al del aceite de chía sin encapsular (1,87 mmol peroxido/kg aceite).

**32. Glycerol transformation by oxidation in a basic homogeneous medium using a gold catalyst.** Jorge M. Marchetti<sup>1</sup> and Alfredo Juan<sup>2</sup>, <sup>1</sup>Norwegian University of Life Sciences, Ås 1432, Norway; <sup>2</sup>Universidad Nacional del Sur, Av Alem 1253, Bahia Blanca 8000, Argentina

The use of gold catalyst in alcohol oxidation reactions is becoming increasingly important compared to conventional catalyst, such as Pt, Pd, due to its good performance.

The amount of biodiesel produced in the world is increasing. Therefore, the amount of glycerol is increasing as well, making it a cheap new raw material. Its purification can be a solution; however, the pharmaceutical industry cannot process all the available glycerol. In consequence, different alternatives use needs to be found. Transformation of glycerol into 1,2 and 1,3 propanediol is a suitable alternative. In this work, oxidation of glycerol using gold catalyst in a methanol medium using atmospheric air as oxidant has been studied. This oxidation produces, primarily methyl glycerate, with a higher level of oxidation on the molecule of glycerol, dimethyl tartronate can be obtained and finally dimethyl mexosalate can be produced.

Different reaction temperatures, air pressure, amount of catalyst, base content, reaction time, reuse of catalyst have been studied and its effect have been analyzed and compared in order to have a better understanding of the catalyst and the reaction itself.

Good final conversion (over 75%), selectivity toward the desirable products and yield were obtained when 10% (w/w) amount of catalyst is employed in the reaction.

**33. Quality, Composition and Oxidative Stability of Avocado Oil.** Andrea M.M. Guedes<sup>1</sup>, Tissiane A. de Oliveira<sup>1</sup>, Flavia M.S. Licurgo<sup>1</sup>, Allan E. Wilhelm<sup>2</sup>, Adelia F. de Faria-Machado<sup>2</sup>, Rosemar Antoniassi<sup>2</sup>, <sup>1</sup>CNPq, Av. das Américas, 29501 – Guaratiba, Rio de Janeiro 23020-470, Brazil; <sup>2</sup>EMBRAPA, Av. das Américas, 29501 – Guaratiba, Rio de Janeiro 23020-470, Brazil

Brazil produces around 150,000 tons of avocado, mainly of Hass, Margarida and Fortuna varieties. There is a great demand for avocado oil due to its fatty acid composition, phenolic compounds and vitamin E content. In this work, avocado oil (Hass variety) was produced in an expeller press of 5 kg/h from lyophilized pulp and compared to the oil obtained from pressing (40 kg/h) using pulp subjected to drying in a tray drier. These oils were compared to samples of commercial oils produced in Israel and Chile. The oils were analyzed for the quality, composition and oxidative stability according to the AOCS official methods. There were significant differences among the evaluated samples regarding the fatty acid composition, acidity, peroxide value, oxidative stability index (Rancimat) and chlorophyll content ( $p < 0.05$ ). As expected, oxidative stability was lower for the samples of higher peroxide value and chlorophyll content.

**34. Effect of different screw press feed rates on extraction efficiency, quality parameters and fatty acid composition of passion fruit seed oil.** Allan E. Wilhelm<sup>1</sup>, Sandro L.R. Reis<sup>2</sup>, Gabriela R. Back<sup>1</sup>, Andrea M.M. Guedes<sup>1</sup>, Adelia F. Faria-Machado<sup>1</sup>, and Rosemar Antoniassi<sup>1</sup>, <sup>1</sup>EMBRAPA, Av das Américas 29501, Rio de Janeiro 23020470, Brazil; <sup>2</sup>Extrait - Óleos Naturais, Rodovia RJ 230 – KM 06 - Quadra 03, Lotes 03 e 04, Bom Jesus do Itabapoana 28360000, Brazil; <sup>3</sup>Universidade Estadual do Norte Fluminense Darcy Ribeiro, Av Alberto Lamego 2000, Campos dos Goytacazes 28013602, Brazil

Passion fruit is appreciated worldwide and Brazil stands as its major producer. The industrial processing of passion fruit juice produces significant quantities of waste that is regularly disposed in the environment. About 15-25% of this waste is composed of seeds, which have an oil content up to 30%. This oil is rich in unsaturated fatty acids and is a valuable product for food and cosmetic industries. The aim of this study was to evaluate the effect of different press feed rates (1.2; 1.8; 2.4 kg/h at 18 rpm and 3.0 kg/h at 24 rpm), using a 5 kg/h screw press, on the extraction efficiency, quality parameters and fatty acid composition of the oil. Concerning the extraction parameters, it was observed a trend of better results at 2.4 kg/h feed rate, especially due to the lowest outlet temperature of the oil (78°C), while other press conditions showed values up to 89°C. Extraction efficiency and residual oil content ranged from 86.1-87.3% and 5.2-5.6%, respectively. Regarding the oil quality and composition, no significant differences ( $p > 0.05$ ) were observed for fatty acid composition, acidity, oil moisture, relative density, oxidative stability, conjugated dienes and refractive index, iodine and saponification value among the evaluated press feed rates. However, at 3 kg/h the lowest free fatty acids content (1.3%) was obtained and at 1.2 kg/h the highest oil moisture (0.3%) was observed. Screw pressing is a feasible method to obtain passion fruit seed oil with both, high extraction efficiency and good oil quality.

**35. Differences in passion fruit seed oil quality according to fruit processing.** Allan E. Wilhelm<sup>1</sup>, Sandro L.R. Reis<sup>2</sup>, Suelen A. Regis<sup>3</sup>, Sergio A. Cenci<sup>1</sup>, Andrea M.M. Guedes<sup>1</sup>, Adelia F. Faria-Machado<sup>1</sup>, Rosemar Antoniassi<sup>1</sup>, <sup>1</sup>EMBRAPA, Av das Américas 29501, Rio de Janeiro 23020470, Brazil; <sup>2</sup>Extrait - Óleos Naturais, Rodovia RJ 230 – KM 06 - Quadra 03, Lotes 03 e 04, Bom Jesus do Itabapoana 28360000, Brazil; <sup>3</sup>Universidade Estadual do Norte Fluminense Darcy Ribeiro, Av Alberto Lamego 2000, Campos dos Goytacazes 28013602, Brazil

Brazil is the largest passion fruit producer and the industries of fruit juice and pulp are responsible of processing 40% of this total. The passion fruit seed is a waste in this industry and it is discharged or used in animal feed. The dried seeds are equivalent to 4% of the fresh fruit weight and contain a valuable oil for cosmetic purposes, which can be extracted by pressing, since the oil content, in dried seeds, varies from 18 to 35%. In order to process the passion fruit seeds, for oil production, the first step consists in washing