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Effect of use of biopolymers on the rheological properties of cupuassu pulp: Time-dependent and steady-state shear

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The cupuassu (*Theobroma grandiflorum* Schum, Sterculiaceae) is a native Amazonian fruit. Its pulp has a pleasant acidic taste and a strong fragrance and is used in candies, ice cream, domestic jellies, and jams. In this work the rheological behavior of the cupuassu fruit pulp, guar gum dispersed in the pulp was studied. The experiments were carried out in a Rheometer AR 2000, using cone-plate (2º, 60mm) geometry. The rheological behavior of guar gum in cupuassu fruit pulp was evaluated by means of shear steady tests in the range of 0.3 to 300 s^{-1} at temperatures 10, 20, 30, 40 and 50ºC. Ostwald-of-Waelle model fitted well the samples flow behavior. Experimental flow behavior index confirmed the pseudo plastic character of all samples. In pulp fruit systems, xanthan showed more pseudo plasticity than guar. The pulp of pure cupuassu thixotropy presented, which was evaluated by the decrease in viscosity as a function of time, while for the pulp with guar and xanthan gums was not observed such behavior.

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Bioactives as ingredients of enriched foods. Does the interaction with the food matrix impact on effectiveness? The PATHWAY-27 project

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The scientific understanding of the role and mechanisms of bioactives in human nutrition is fragmented. Research often addresses the theoretical possibility of health improvement effects rather than the real, practical use of bioactives for everyday diets. To full fill consumer demands for foods delivering appropriate health and wellbeing benefits bioactives cannot be considered as discrete chemical compounds, and research must focus on bioactive-enriched foods. The EU funded project PATHWAY-27 (Pivotal assessment of the effects of bioactives on health and wellbeing. From human genoma to food industry) uniquely addresses the role and mechanisms of action of 3 bioactives (docosahexaenoic acid, β-glucan, and anthocyanins) chosen for known/claimed effectiveness in reducing some risk factors of the metabolic syndrome (MetS), enriching 3 different widely-consumed food matrices (dairy-, bakery-, egg based- products). The critical evaluation of bioactive-food matrix interactions is a key element of PATHWAY-27, as well as the extent of synergies among the 3 selected bioactives. The project is running parallel *in vitro/in vivo* studies that will enable the selection of robust biomarkers by advanced omics techniques, and will deliver a better understanding of the role and mechanisms of action of the selected bioactives and bioactive-enriched foods. PATHWAY-27 will produce protocols, best practices and guidelines for planning studies on bioactives, and guidance to SMEs for producing health-promoting bioactive-enriched foods and for submitting convincing health claim dossiers to EFSA. Guidelines will be generic and will apply to a wide range of bioactives and bioactive-enriched foods.

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