EFFECT OF GLASS TRANSITION IN COLOR AND TEXTURE CHARACTERISTICS OF DRY YACON

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The yacon (Smallanthus sonchifolius) is a prebiotic tuberous root because of its fructooligosaccharides elements, and highly perishable due to its 90% water content. The drying technique is used to extend the shelf life of the food. During this process, some changes happened in the food structure and it can be desirable or not. Glass transition temperature (Tg) is the value where the faze change occurs to the glassy state and is a dependent phenomenon of the drying temperature. Then, the aim of this study was to verify the Tg influence over the color, texture, moisture and water activity characteristics of the dehydrated and dry yacon. For this purpose the yacon slices were blanched, dehydrated in fructose osmotic solution and dried at 40°C or 70°C for 24h. The glass transition temperature established was 49.14°C, using DSC. Samples were heated at a rate of 10°C/min, and calibrated with indium. The color and texture measurements were instrumental using reflectance spectrophotometer and texturometer (CT3, Brookfield), respectively. The samples were also classified according to its moisture content and water activity. When the yacon slices were dried at 70°C, showed crispy texture characteristics (break time of 1.03 seconds (s)), moisture (9.11%) and darker color (L – 53.04; a – 6.79), differing of the yacon dried at 40°C, which had gum texture (12s), with lighter colored (L – 65.92; a – 3.19) and higher moisture content (10.95%). It was possible to conclude that the glass transition event promote significant changes in texture, color and moisture in the dry yacon.