The industrialization of cassava to obtain starch generates a large amount of residues, this material represents an environmental problem and could be prevented by using the bagasse to obtain biodegradable materials. Thus, the aim of this work was to produce biodegradable trays based on starch and bagasse from cassava, and to characterize them according to their mechanical properties (tensile strength and elongation). The trays were produced with the combination of cassava starch (0 – 100%) and cassava bagasse (0, 5, 10, 20, 30 and 100%) by a baking process. The obtained trays were stored for 7 days at 25 °C and 33, 58 and 90% relative humidity (RH) before characterization. The mechanical properties were determined in a CT3 texture analyzer (Brookfield, USA). All trays samples showed the highest tensile strength when stored at 33% RH. The trays produced only with cassava bagasse had the highest tensile strength (Tukey test, p ≤0.05), with values ranging from 23,52 MPa (33% RH) to 3,40 MPa (90% RH). The elongation of all the samples increased with increasing of RH. The sample produced only with cassava starch showed, elongation values ranging from 1,82% (33% RH) to 2,13 (90% RH), and all samples produced with the combination of starch and bagasse showed higher elongations than trays produced only with starch, with values ranging from 2,60% (33% RH) to 15,15% (90% RH). The use of starch and bagasse from cassava can be a good alternative to produce disposable trays with appropriated mechanical properties to be used for food packaging.