ABSTRACT

ISOTERM ADSORPTION OF MORINGAN OLEIFERA ACTIVATED CARBON, ZEOLITE, AND BENTONITE IN SUGAR CANE MOLASSES CLARIFIER

*The purpose of the research is to examine the correlation between the temperature of adsorption, the concentration of adsorbent and type of adsorbent toward the color of purified molasses. The benefits of this research to improve the usability of molasses value and economy added value. Method of the researched, the first stage is consisting of the adsorbents preparation such as moringa seed activated carbon, bentonite and zeolite, and dilution of molasses. The second stage consisting the adsorbent of activated carbon adsorption moringa seeds, zeolite, and bentonite, and determined the temperature of adsorption and type of adsorbent for the best adsorb the color of melanoidin in molasses. The third stage consist the mixture adsorbent bentonite and zeolite, which adsorption temperature 45^0C. The design of analysis a simple linear regression, the factor used the var of adsorption temperature from 45^0C, 50^0C and 55^0C, the concentration of the adsorbent are 20% by weight per volume, 25% by weight per volume and 30% by weight per volume, the size of the mesh adsorbent are 40 mesh, 60 mesh and 80 mesh. The results showed that the adsorption temperature, type, size and adsorbent concentration are correlated with the color of molasses purification result, total dissolved solids and viscosity. Adsorption temperature 45^0C and 40 mesh size adsorbent concentration of 45% to produce L*33.52 a*-0.67 b*2.78, concentration of 50% to produce L*33.90 a*-0.64 b*is 2.78, and the concentration of 55% to produce L*34.04 a*-0.62 b*2.78. Adsorption temperature 45^0C and 60 mesh size adsorbent concentration of 45% to produce L*31.67 a*-0.67 b*2.61, concentration of 50% to produce L*38.31 a*0:57 b*0.63, and the concentration of 55% to produce L*33.75 a*-0.68 b*2.73. Adsorption temperature 45^0C and 80 mesh size adsorbent concentration of 45% to produce L*32.57 a*-0.74 b*2:54, concentration of 50% to produce L*32.97 a*-0.73 b*2:58, and the concentration of 55% to produce L*32.18 a*-0.69 b*2.64.*

Keywords : Isotherm Adsorption, Molasses, Moringa Seed Activated Carbon, Bentonite, Zeolite.