

## **ABSTRACT**

### **THE EFFECT OF ROTATIONAL SPEED (RPM) *DISC MILL* TOWARD THE UNIFORMITY INDEX OF BROWN SUGAR**

**By**

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The aims of this research were to find out the effect of rotational speed of disc mill to the size spreading and uniformity index of brown sugar and to know the optimal rotational speed of disc mill producing size of 0,8 to 1,2 mm. The parameters observed were water content, fineness modulus (FM), uniformity index, grain yield, bulk density, and color. The research was conducted at five variations of rotational speed which were 800, 900, 1000, 1100, and 1200 rpm with 1500 g sample for each variations.

The results show that the water content of brown sugar produced is between 1,30 and 1,76%, the fineness modulus is around 1,99 to 4,74, the particle size is around 0,41 to 2,79 mm, the highest grain yield reaches 45,32% at actual speed of 900 rpm, and the range of bulk density is about 721,07 to 740,40 kg/m<sup>3</sup>. The color of the middle fraction compared with commercial sugar show does not significantly different. The color indexes of middle fraction in each treatment are  $I_{RED}$  0,41 to 0,43,  $I_{GREEN}$  around 0,35, and  $I_{BLUE}$  0,22 to 0,24. Based on the analysis of variance and Duncan's method ( $\alpha < 0,05$ ) show that the rotational speed (rpm) significantly affects to the particle size, fineness modulus, and grain yield. But does not influence to the water content, bulk density and color.

**Keywords :** brown sugar, disc mill, rotational speed (rpm)