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DRYING CHARACTERISTICS AND LYSINE CONTENT OF WHEAT DISTILLERS GRAINS WITH SOLUBLES UNDER THREE DRYING METHODS

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ABSTRACT The drying characteristics and lysine content of wheat distiller's grain with solubles were studied under three methods: forced-air drying, microwave drying and microwave-convective drying. For the forced air drying, temperature was set at five levels (40, 60, 80, 100, and 120°C), maintaining air velocity and relative humidity at 0.7 – 0.8 m/s and less than 8%, respectively. Using a domestic microwave oven, four power levels (P4, P6, P8, and P10) were used in microwave drying while four combination settings (Combinations 1, 2, 3 and 4) at 30% power were set-up for microwave convection drying. Experimental data were fitted to four common thin layer drying models, with the Page model found to best describe the drying behaviour of the distiller's grain under the three methods. Lysine content and the color parameters (*L*, *a*, and *b*) were also determined and assessed for linear correlation with temperature and microwave power. Lysine content and *L* values decreased with increases in drying air temperature. Lighter coloured DDGS samples have higher lysine content.

Keywords: Wheat distiller's grain, Microbiota, Drying characteristics, Lysine content, Color parameters.