

## **EFFECT OF MOISTURE CONTENT AND SCREW SPEED ON THE THERMOPLASTIC EXTRUSION OF LOW-TANNIN COLORED SORGHUM**

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In Brazil, almost the totality of the sorghum is consumed as animal feed. Nowadays, concerning with obesity and cancer related to diets, tendency of using natural pigments with high antioxidant activity and high dietary fiber content have been driven the attention to colored sorghum. Whole sorghum flour from red cultivar BRS310 was processed in a twin-screw extruder fitted with a circular die, running at constant solid feed of 9 kg/h and barrel temperatures profile of 30, 30, 60, 90, 100, 100, 120, 120, 150 and 150°C. The moisture content (MC) ranged from 14 to 26% (w.b.) and screw speed varied between 300 to 700 rpm. Specific mechanical energy (SME) and paste viscosity of the extrudates were used in order to evaluate the extrusion process. SME values ranged from 533.97 to 1342.45 kJ/kg, which correspond to extrudates produced at 359 rpm with 24.2% MC and 641 rpm with 15.8% MC, respectively. As expected, the increase of screw speed caused an increasing of the SME and decreasing of water content lead to an increment of SME value, confirming the water plasticization effect. The results of cold paste viscosity ranged from 126.0 to 374.0 cP for treatments processed at 500 rpm with 26% MC and 700 rpm with 20% MC, respectively. Increasing shear rate and decreasing water content, the higher value of cold paste viscosity was observed, indicating that this material could be used in cold beverages.