

***In Vitro* Gas Production of Citrus Pulp Silage with Different Levels of Sugar Beet Pulp**

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The aim of the present study was to evaluate the effect of different levels of sugar beet pulp on the *in vitro* gas production parameters of citrus pulp silage. In this experiment, the whole citrus pulp was manually chopped (2-3 cm length) and used as untreated or treated with sugar beet pulp for 6, 12, and 18 g/Kg fresh citrus pulp. Treatments were ensiled under anaerobic conditions for 6 weeks. Samples were then taken, and dried and ground (to pass a 2 mm sieve). Rumen fluid was collected from three ruminally fistulated sheep (42 ± 2.5 kg body weight) and strained through four layers of cheesecloth. The laboratory handling of rumen fluid was carried out under a continuous flow of CO₂. Into each syringe was weighed 200mg of sample material (3 replicates per treatment sample). The syringe was then filled with 30ml of medium consisting of 10ml rumen fluid and 20ml buffer solution. The syringes were placed in an incubator (38.6°C). Gas production was measured at 2, 4, 6, 8, 12, 24, 36, 48, 72, and 96 h. Cumulative gas production data were fitted to the exponential equation $P=b(1-e^{-ct})$, where b is the gas production from the insoluble fraction (ml), c is the gas production rate constant for b (ml/h), t is the incubation time (h), and P is the gas produced at time t. *In vitro* digestibility of organic matter (OMD %), net energy (NEL, MJ/kg), metabolizable energy (ME), short chain fatty acids (SCFA) content, and fileg point of samples was estimated. The data were analyzed in a completely randomized design using the General Linear Model (GLM) procedure of SAS (2004). There were significant differences between treatments for *in vitro* gas production parameters ($p<0.05$). The OMD and ME were significantly different among samples ($p<0.05$), so that by increasing the level of sugar beet pulp, %OMD and ME of silages increased. There were no significant differences between treatments for NE₁ and SCFA ($p>0.05$). As the fileg point data show, there were significant differences among treatments for quality ($p<0.05$).

Key Words: Citrus pulp silage, Gas production, Sugar beet pulp