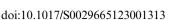
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Australian grown sugarcane derived polyphenol has the potential to reduce enteric methane emission from second cross lambs

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The concentration of methane in the atmosphere has increased rapidly since the pre-industrial era, and agriculture is one of the largest contributors to global atmospheric methane pool.^(1,2) Australia needs to reduce 50% of its greenhouse gas emissions by 2030 to comply with the Paris agreement.⁽²⁾ Therefore, strategies including nutritional interventions to mitigate enteric methane emission from ruminants, are urgently required to achieve this goal. This study investigated the methane mitigation potential of sugarcane-based polyphenol (Polygain[™], The Product Makers Australia, Keysborough, Australia). The study was approved by The University of Melbourne Animal Ethics Committee. Twenty-four 7-8 months old Poll Dorset × (Merino × Border Leicester) lambs were randomized to three different dietary treatment groups; control (n = 8), 0.25% polygain (PG0.25; n = 8) and 1% polygain (PG1; n = 8). The standard diet of the lambs contained 25% crushed barley grain, 25% crushed wheat grain, 25% oaten chaff and 25% lucerne chaff. The animals were acclimatized to the control diet and feed additive for 15 days prior to the 16-day supplementation and measurement period. Enteric methane emission was measured using a hooded sniffer system (Guardian NG gas card)⁽³⁾ attached to the feed bins. Body weight (BW) was measured using a walk-over scale on a weekly basis. Daily feed intake was calculated from feed offered and leftover weighing. There was no effect of diet on feed intake (p = 0.08). However, there was significant (p < 0.001) interaction between diet x day. Body weight was increased by dietary PG in a linear manner (p = 0.05). Day (p < 0.001) and the interaction between day and dietary treatment (p < 0.05) also had significant effect on the BW of the lambs with the addition of polygain. Enteric methane production decreased 49.2% in the PG0.25 group, while the PG1 group produced 33.5% less methane compared to the control group (p = 0.005). There was significant (p = 0.002) reduction in methane yield (g CH₄/kg DMI) which was reduced by 51.5% and 37.1% in the PG0.25 group and PG1 group, respectively. In conclusion, low dosages of polygain can potentially be used as a feed additive for reducing enteric methane emissions without compromising lamb growth.

References

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