

Isolation and identification of tannin-degrading bacteria from deer gut and potency for improving nutritional value of tannin rich plants

Tahereh Mohammadabadi^{1*}, Maryam Gheibipour², Hosein Motamedi³, Morteza Chaji¹
and Basil A. Abbas⁴

¹ Professor, Department of Animal Science, Faculty of Animal Science and Food Technology, Agricultural Sciences and Natural Resources University of Khuzestan, Mollasani, Iran

² MSc Graduated, Faculty of Animal Science and Food Technology, Agricultural Sciences and Natural Resources University of Khuzestan, Mollasani, Iran

³ Professor, Department of Biology, Faculty of Science, and Biotechnology and Biological Science Research Center, Shahid Chamran University of Ahvaz, Ahvaz, Iran

⁴ Professor, Department of Microbiology, Faculty of Veterinary Medicine, University of Basrah, Basrah, Iraq

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Abstract

This experiment was conducted to isolate and identify tannin-degrading bacteria from deer gut and to use these bacteria in improving of the nutritive value and gas production parameters of conocarpus and eucalyptus leaves. Isolation, tannase enzyme activities and processing of eucalyptus and conocarpus leaves with these isolates was conducted for 10 days. The result of molecular identification based on DNA sequencing indicated that isolates of A1, A2, A3, A4, A5, A7, A8 and A9 were similar to *Klebsiella pneumoniae* while A6 isolate belonged to *Acinetobacter* sp. *Acinetobacter* sp. and *K. pneumoniae* A2 had the highest and lowest enzymatic activity of tannase, respectively. Bacterial fermentation decreased tannin of conocarpus and eucalyptus leaves and the lowest was for processing with *K. pneumoniae* A7 and *Acinetobacter* sp A6. Bacterial processing had no effect on the gas production potential of conocarpus leaves, but the gas production rate was increased; while fermentation caused an increase in the gas production potential and rate of eucalyptus leaves. The highest fermentation parameters were found in conocarpus and eucalyptus leaves processed with *K. pneumoniae* A9. These results indicated that *K. pneumoniae* and *Acinetobacter* sp. as tannin degraders isolated from deer gut improved fermentation parameters of conocarpus and eucalyptus leaves and can be used to enhance the nutritive value of tannin rich plants.

Key words: Tannin-degrading bacteria, Conocarpus, Deer, Eucalyptus, Tannin, Nutritive value

* **Corresponding Author:** Tahereh Mohammadabadi, Professor, Department of Animal Science, Faculty of Animal Science and Food Technology, Agricultural Sciences and Natural Resources University of Khuzestan, Iran, E-mail: mohammadabadi@asnrukh.ac.ir



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