**Bibliografía del artículo**: Los extractos vegetales son una alternativa natural a los antibióticos

**Autores:** V. Pereira, JM. Chapel, R. Rodríguez-Bermúdez, I. Orjales, R. Domínguez y P. Vázquez

**Sección:** En Portada

**Correspondiente a:** Albéitar 209

Benchaar, C., Calsamiglia, S., Chaves, A.V., Fraser, G.R., Colombatto, D., McAllister, T.A. and Beauchemin, K.A. 2008. A review of plant-derived essential oils in ruminant nutrition and production. Animal Feed Science and Technology, 145(1-4), 209-228.

Busquet, M., Calsamiglia, S., Ferret, A., Cardozo, P.W. and Kamel, C. 2005. Effects of Cinnamaldehyde and Garlic Oil on Rumen Microbial Fermentation in a Dual Flow Continuous Culture. Journal of Dairy Science. 88: 2508–2516.

Busquet, M., Calsamiglia, S., Ferret, A. and Kamel, C. 2006. Plant Extracts Affect In Vitro Rumen Microbial Fermentation. Journal of Dairy Science. 89:761–771.

Cardozo, P. W., Calsamiglia, S., Ferret, A. and Kamel C. 2006. Effects of alfalfa extract, anise, capsicum, and a mixture of cinnamaldehyde and eugenol on ruminal fermentation and protein degradation in beef heifers fed a high-concentrate diet. Journal of Animal Science. 84:2801-2808.

Cowan, M.M. 1999. Plant Products as Antimicrobial Agents. Clinical Microbiology Reviews, Vol. 12, No. 4 p. 564–582.

Helander, I.M., Alakomi, H.L., Latva-Kala, K., Mattila-Sandholm, T., Pol, I., Smid, E.J., Gorris, L.G.M. and Von Wright, A. 1998. Characterization of the action of selected essential oil components on gram-negative bacteria. Journal of Agricultural and Food Chemistry, 46, 3590-3595.

Hernandez, J., Benedito, J.L., Vázquez, P., Pereira, V., Méndez, J., Sotillo, J. and Castillo, C. 2009. Supplementation with plant extracts (carvacrol, cinnamaldehyde and capsaicin): its effects on acid-base estatus and productive performance in growing/finishing bull calves. Berliner Münchener Tierärztl. Wochenschr. 122, 93-99.

Hosoda, K., Kuramoto, K., Eruden, B., Nishida, T. and Shioya, S. 2006. The effects of three herbs as feed supplements on blood metabolites, hormones, antioxidant activity, IgG concentration, and ruminal fermentation in Holstein steers. Asian-Australasian Journal of Animal Sciences, 19, 35-41.

Kahkonen, M.P., Hopia, A.I., Vuorela, H.J., Rauha, J.P., Pihlaja, K., Kujala, T.S. and Heinonen, M. 1999. Antioxidant activity of plant extracts containing phenolic compounds. Journal of Agricultural and Food Chemistry, 47(10): 3954-3962.

Kamel, C. 2001. Natural plant extracts: classical remedies bring modern animal production solutions. Cahiers Options Mediterraneennes, 54, 31-38.

Martin, C., Morgavi, D.P. and Doreau, M. 2010. Methane mitigation in ruminants: from microbe to the farm scale. Animal, 4(3), 351-365.

Maurin, J. and López, S. 2015. ¿En qué consisten los efectos antimicrobianos de los extractos de plantas? Albéitar, 183: 46-47.

McEwan, N.R., Graham, R.C., Wallace, R.J., Losa, R., Williams, P. and Newbold, C.J. 2002. Effect of essential oils on protein digestion in the rumen. Reproduction Nutrition Development, 42 (1), S65-S66.

Newbold, C.J., McIntosh, F.M., Williams, P., Losa, R. and Wallace, R.J. 2004. Effects of a specific blend of essential oil compound on rumen fermentation. Animal Feed Science and Technology, 114, 105-112.

Pereira, V., Vázquez, P., Benedito, J.L., Hernández, J., López-Alonso, M., Abuelo, A. and Castillo, C. 2012. Utilización de extractos vegetales en la alimentación de rumiantes. Albéitar, 157.

Reglamento CE 1831/2003. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:268:0029:0043:EN:PDF>.

Rochfort, S., Parker, A.J. and Dunshea, F.R. 2008. Plant bioactives for ruminant health and productivity. Phytochemistry, 69 (2), 299-322.

Shah,M.A., bosco, S.J. and Mir, SA 2014. Plant extracts as natural antioxidants in meat and meat products. Meat Science, 98(1): 21-33.

Sliwinski, B.J., Soliva, C.R., Machmüller, A. and Kreuzer, M., 2002. Efficacy of plant extracts rich in secondary constituents to modify rumen fermentation. Animal Feed Science and Technology. 101, 101–114.

Vázquez, P. 2007. Estrategias nutricionales como alternativa al uso de monensina en terneros de cebo. Tesis Doctoral, Universidade de Santiago de Compostela.

Yang, W.Z., Ametaj, B.N., Benchaar, C., He, M.L. and Beauchemin, K.A. 2010. Cinnamaldehyde in feedlot cattle diets: Intake, growth performance, carcass characteristics, and blood metabolites. Journal of Animal Science, 88, 1082-1092.