

Probiotics Use in Horse Feeding



Paula Gomes Rodrigues^{1*}, Camilla Mendonça Silva¹, Gregório Murilo de Oliveira Júnior¹, Clístenes Gomes de Oliveira² and Stephan Alexander da Silva Alencar³

¹Department of Animal Science, Federal University of Sergipe, Brazil

²Veterinary of Police Squadron Mounted from Sergipe, Brazil

³Department of Animal Science, Federal University of Mato Grosso do Sul, Brazil

Submission: March 25, 2019; **Published:** April 18, 2019

***Corresponding author:** Paula Gomes Rodrigues, Federal University of Sergipe, Zip Code 49100-000, Sergipe, Brazil

Abstract

Probiotics are live microorganisms, offered in animal feed at adjusted doses, providing improvements in host health. Several studies have confirmed the yeasts effect on the health, digestibility coefficient, and performance of horses, that way, the *Saccharomyces cerevisiae* yeast can become an important probiotic additive for equines besides reducing the incidence of colic in these animals.

Keywords: Equine; *Saccharomyces cerevisiae*; Yeasts; Intestinal microorganisms; Supplementation; Additives normal; Microbiota; Intestinal environment; Digestive tract; Horse feeding; Microorganism; Food digestibility; Gastric environment; Antimicrobial properties; pH; Temperature; Probiotics

Introduction

In equidae, probiotics are used trying to establish a desirable balance among intestinal microorganisms, especially that beneficial. For these benefits, supplementation of these additives in the diet creates an expectation, after use, to provide viable and suitable microscopic organisms for adaptation in the intestinal environment, acting in a beneficial way in the balance of the normal microbiota of the digestive tract, increasing zootechnical performance and/or preventing pathologies of the digestive tract [1]. Therefore, it is essential to evaluate in a more specific way the use of yeasts in the horse feeding as potential probiotics for the specie, considering there are indications of these acting positively on the food digestibility and health of the horses.

Probiotics Characterization

For a microorganism to be considered a good probiotic must have some attributes such as being able to survive the gastric environment, antimicrobial properties, higher growth rate than its elimination by intestinal peristalsis, able to adhere to mucus and epithelial cells, and it is essential to be produced and remains viable for long periods. The first three mechanisms are usually attributed to lactic acid producing bacteria, while the latter two are more yeast specific [1].

The characteristics attributed to probiotic microorganisms are related to the production of substances that suppress pathogens or prevent their growth, competition with them for adhesion sites and nutrients, preventing they to produce toxins as well as inhibiting their action; to be innocuous to the host to not cause

any disease, and it must be natural to the digestive system, being able to resist to this environment, mainly to changes in pH and temperature [2].

Several microorganisms are currently used as probiotics, the most common of which are *Lactobacillus*, *Bifidobacterium*, *Streptococcus*, and live yeasts such as *Saccharomyces cerevisiae* [3]. *Saccharomyces cerevisiae* yeast has good results, promoting intestinal microbiota balance, which can be observed in an experiment where it was used a dose of 2g/day of yeast for 4-year-old mini-horses, showing balance in the intestinal microflora, and with changes in the bacterial population [4].

Effect of the *Saccharomyces Cerevisiae* Use on the Diet of Horses

Probiotics are widely used for equines in the recovery of animals undergoing some type of stress, such as deficiency in colostrum consumption, stress generated by the weaning process, during transportation with significant water and food restrictions, abrupt climatic changes, chronic morbidities due to mismanagement such as laminitis or gastrointestinal diseases, supplements for animals with low body score, and long-term therapy in order to circumvent the use of antibiotics [5]. In addition, it is used to try to establish a desirable balance between intestinal microorganisms, especially those beneficial. These additives have become a differentiated option due to their attributes, as their ability to reduce infectious pathologies and, consequently, reduce the use of antibiotics [6], as well as to reduce cases of intestinal

obstruction. They may be offered to animals in a variety of ways, such as powders, pastes, gels and most often orally, mixed with food during the meal or supplied with water [7].

Among these probiotics, *Saccharomyces cerevisiae* has potential to be used as a probiotic in equines, since research in other species of animals has shown positive effects [8,9]. In weanling foals, the use of *Saccharomyces cerevisiae* yeast at 5 g/day showed positive results in hemicellulose digestibility [1]. In diets with low-quality bulky food supplemented with this yeast, the use was approximately 9% better, with an increase in the digestibility coefficient values when compared to the yeast-free diet FURTADO [10]. Similar results were observed when supplementing 20 g of the probiotic *Saccharomyces cerevisiae* per day for horses under training, with an increase in hemicellulose digestibility of 4.1% [11]. Thus, in order to improve the digestibility of the fibrous portion and increase the energy available to the animals, the diet can be increased with these probiotic additives.

Conclusion

The information presented demonstrates that the use of the probiotic *Saccharomyces cerevisiae* improves the actions of the intestinal microbiota, allowing the greater degradation of the fibrous components of the diet, which predisposes better health conditions to the supplemented animals.

References

- Moura RS, Saliba EOS, Almeida FQ, Lana ÂMQ, Silva VP (2009) Feed efficiency in *Mangalarga Marchador* foals fed diet supplemented with probiotics or phytase. *Revista Brasileira de Zootecnia* 38(6): 1045-1050.
- Gupta V, Garg R (2009) Probiotics. *Indian J Med Microbiol* 27(3): 202-209.
- Oiticica PC (2007) Avaliação do efeito da suplementação dietética a base de *Saccharomyces cerevisiae* sobre o ganho de peso, altura, perfil hematológico e índice de cólica de potros em crescimento. Dissertação (Mestrado em Diagnóstico e Cirurgia de Equinos) - Faculdade de Jaguariúna, São Paulo, Brazil.
- Moraes Filho LAJ, Palagi MA, Costa RL (2015) Avaliação da inclusão de *Saccharomyces cerevisiae* e óleos essenciais sobre a digestibilidade dos nutrientes da dieta em cavalos. *Anais. Ribeirão Preto: Associação Brasileira dos Médicos Veterinários de Equídeos*.
- Taran FMP, Gonzaga IVF, Françoso R, Centini TN, Gandra JR (2011) Avaliação do efeito da inclusão de *Saccharomyces cerevisiae* sobre a digestibilidade aparente total em dieta para equinos. In: XXII Reunión Latino americana de Producción Animal, Montevideo.
- Weese JA, Anderson M, Lowe A, Monteith GJ (2003) Preliminary investigation of the probiotic potential of *Lactobacillus rhamnosus* strain GG in horses: fecal recovery following oral administration and safety. *Can Vet J* 44(4): 299-302.
- Braga AC, Araújo KV, Leite GG, Mascarenhas AG (2008) Níveis de fibra em detergente neutro em dietas para equinos. *Revista Brasileira de Zootecnia* 37(11): 1965-1972.
- Santos FAP, Carmo CA, Martinez JC, Pires AV, Bittar CMM (2006) Desempenho de vacas em lactação recebendo dietas com diferentes teores de amido total, acrescidas ou não de levedura (*Saccharomyces cerevisiae*). *Revista Brasileira de Zootecnia* 35(4): 1568-1575.
- Gattass CBA, Da Graça MM, De Abreu UGP, Lempp B, Stein J (2008) Consumo, digestibilidade aparente e ganho de peso em bovinos de corte confinados suplementados com cultura de levedura (*Saccharomyces cerevisiae* cepa 1026). *Ciência Animal Brasileira* 9: 535-542.
- Morgan LM, Coverdale JA, Froetschel MA, Yoon I (2007) Effect of yeast culture supplementation on digestibility of varying forage quality in mature horses. *Journal of Equine Veterinary Science* 27: 260-265.
- Rezende ASC, Trigo P, Lana AMQ, Santiago JM, Silva P (2012) Yeast as a feed additive for training horses. *Ciência e Agrotecnologia* 36: 354-362.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/JOJS.2019.02.555581](https://doi.org/10.19080/JOJS.2019.02.555581)

Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>