Wild mushroom extracts in the fight against canine pyoderma

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Staphylococcus pseudintermedius is one of the most common pathogens causing skin disorders in pets, particularly, canine pyoderma. *S. pseudintermedius* can be distinguished by its resistance to methicillin, being MSSP (methicillin-susceptible *S. pseudintermedius*) or MRSP (methicillin-resistant *S. pseudintermedius*). The identification of MRSP and its propensity for multidrug resistance lead to the need of veterinarians to seek best practices in the treatment of canine pyoderma. Mushrooms have medicinal properties since they are a rich source of phenolic acids with high bioactive potential and which have proven to have several biological benefits, namely, in antioxidant and antimicrobial activities. Therefore, we aimed to extract phenolic compounds from two species of wild mushrooms and evaluate their antimicrobial activity against 10 MSSP and MRSP isolated from canine pyoderma.

With 300g of two species of mushrooms, *Gymnopilus junonius* and *Lactarius deliciosus*, were freeze-dried, mill-powdered and stored in a desiccator. After the extraction of phenolic acids, the phenolic profile of the extracts was performed by HPLC-DAD-MS. The evaluation of the antioxidant properties was performed using 3 methods. Finally, the antimicrobial susceptibility assay was performed using the Kirby-Bauer disk diffusion method.

Gymnopilus junonius and *Lactarius deliciosus* had a higher content of gallic acid and p-hydroxybenzoic acid, respectively. *Gymnopilus junonius* obtained better antioxidant activity than *Lactarius deliciosus* extracts with values of 69%, 76% and 50% in FRAP, β-carotene and lipid peroxidation assays, respectively. *Gymnopilus junonius* showed inhibition of bacterial growth in all isolates except 2 isolates with halos up to 13 mm in diameter. *Lactarius deliciosus* inhibited the growth of all strains, except for one, with halos up to 14mm.

In conclusion, it appears that mushrooms are a rich source of phenolic compounds with promising antioxidant and antimicrobial activities. However, *in vivo* studies should be carried out with mushroom extracts being applied directly in canine pyoderma.

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