TITLE: PHARMACOLOGICAL POTENTIAL OF SUPERCRITICAL FLUID EXTRACTS FROM THE EDIBLE MUSHROOM *Agaricus bisporus*

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Mushrooms are known for medicinal value and it has health benefits associated with its dietary intake, main are due to its various bio-molecular components. However, there are difficulties in screening and production of these compounds, as well, disadvantages due using toxic solvents (e.g. methanol and acetone), frequently used in classical extraction methods of these compounds. The supercritical fluid (SF) extraction uses high-pressure solvents; it has considered a clean technology, since the extracts obtained with this process have high purity, when compared to traditional extraction. Here, our objective was produce supercritical fluid extract from mushroom *Agaricus bisporus*, and evaluated its medicinal potential. The 1,000g of whole mushroom *in nature* were dried in oven at 45-60◦C for 18 h and processed to produce particles with size classified as mesh 32. Approximately 100 g of raw grounded material was used to obtain the SF extracts applying CO_2 at 200 and 300 bar of pressures and 40 °C. The antimicrobial activity was carried out against *Escherichia coli* (ATCC 35218), *Pseudomonas aeruginos*a (ATCC9027), and *Staphylococcus aureus* (ATCC 80958) by disc diffusion method , which presented inhibition halo ≥ 10 mm at 20 µg. While, platelet aggregation was determined in the platelet-rich plasma using the agents: 6 µM adenosine diphosphate (ADP) and 6 Mm epinephrine. The pretreatment with 400 µg/mL SF showed significant hypofunction of the two aggregating agents, when compared to vehicle. The results demonstrate that *A. bisporus* promotes changes in the platelet metabolism with an inhibitory effect on primary hemostasis. In addition, the SF produced an increase in the anti-aggregate effect when compared to the effect produced by

conventional extracts. Finally, it is important to highlight that SF extracts presented potential pharmacological effects, but further investigation is required to prove it.

Keywords: Antimicrobial, anti-aggregate, supercritical fluid extraction, hemostasis.

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