Tumor Growth Reduction and Nitric Oxide Production in Walker 256 Tumor-bearing Rats Treated with the Medicinal Mushroom *Agaricus brasiliensis*.

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**INTRODUCTION:** Cancer is a disease characterized by uncontrolled growth of mutated cells, which can invade tissues and organs of the body causing various damages. Different mushrooms have anti-tumor and immunomodulatory properties, such as the mushroom *Agaricus brasiliensis*. This study evaluated the effects of diet enriched with 10% of *A. brasiliensis* solid-state fermented on tumor growth reduction and the production of nitric oxide by peritoneal macrophages from Walker 256 tumor-bearing rats.

**MATERIAL AND METHODS:** Two groups were used; one received a diet supplemented with 10% of *A. brasiliensis* by 50 days (TSA) while another (TS) received standard diet, without addition of the mushroom. The tumor was assessed by weight reduction of the tumor in relation to the groups treated or not with the mushroom and the quantification of nitric oxide was carried out by Griess method.

**DISCUSSION AND RESULTS:** The intake mushroom by TSA group provided a tumor reduction of 66.8% when compared with the control TS, which due to various bioactive compounds present in the mushroom that activate the immune system and have immunomodulatory activity. The concentration of nitric oxide was lower and statistically different in the group treated with *A. brasiliensis* TSA (0.0904 mmol.L-1 NaNO3.mg -1) in relation to the group that ingested the mushroom: TS (0.0924 mmol.L-1 NaNO3.mg -1). Probably the intake mushroom triggered an immune response that was activated by NO-independent mechanisms. Although this molecule acts as an effector in antitumor activity can damage other cells when there is overproduction.

**CONCLUSION:** The mushroom *A. brasiliensis* showed antitumor action and not activated NO production by peritoneal macrophages thereby indicating that there was systemic protection against harmful effects of its overproduction.

**Keywords:** Cancer, Rats, Sun Mushroom.

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