

protease A (65.30%) and pH 7 Protease B (63.75%) for one hour with the best solubility. While, the content of amino acids was the highest with hydrolysis with each kind of enzyme (62.73 and 61.25 mg/g, respectively). The content of total nucleotides was the highest after extraction with 80°C hot water for 150 min (12.62 mg/g). The optimal conditions for the King oyster umami extraction were: the first stage, water as extraction solvent (pH 7), enzyme concentration of 2% each of protease A and B, temperature 40 and incubation time of 1 h; the second stage, 80°C hot water extraction for 150 min. King oyster extracts showed an equivalent umami concentration of 568.55%. The king oyster seasoning prepared according to the optimum conditions had an umami value of 39.21% and contained mannose (87.90 mg/g) and trehalose (196.07 mg/g) which provide a sugary taste. Overall, this study shows king oyster seasoning can be a natural source of food, but also finds its appropriate extraction method, to enhance the dual needs of flavor and health.

Keywords: *Pleurotus eryngii*, mushroom, amino acids, 5'-nucleotides, umami seasoning

PS-S7-3: Hair Growth and Regeneration Effects of the Outdoor Cultivated *Agaricus brasiliensis* (KA21)

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A Brazilian medical mushroom, *A. brasiliensis*, has been widely used in the field of complementary and alternative medicine for its antitumor effect and immune-enhancing action. Our human clinical trial with the outdoor cultivated *A. brasiliensis* (KA21) has confirmed various beneficial effects that include a reduction in hair loss and a reduction in grey hair. As such, we conducted the following trial to verify if hair growth-promoting effects of *A. brasiliensis* were affected by methods of cultivation. We shaved a part of BALB/c, C3H/HeJ, and C57BL/6J mice as a model of hair loss. We then orally administered fluorouracil (5-FU) to partly shaved BALB/c mice for five days to assess drug-induced hair loss associated with an anticancer agent. Mice were fed AIN93G diet (control group), with 3% indoor cultivated *A. brasiliensis* (KA21) (KAID group), or with 3% outdoor cultivated *A. brasiliensis* (KA21) (KAOD group). The rate of hair regeneration was then measured. Our results showed that the KAOD group exhibited a higher rate of hair regeneration than the AIN93G group. This effect was observed in all strains of mice used for this trial. In contrast, the KAID group exhibited a lower rate of hair regeneration than the KAOD group in C3H/HeJ mice. Hair regeneration was also weak in the C57BL/6J mice; however, this effect was clearly observed in BALB/c mice. In the drug-induced hair loss model, hair regeneration was promoted in the KAOD group compared to the AIN93G and KAID groups. The basic structure of hair follicles and the basic mechanism of hair growth are similar across species; thus, based on the present trial, it may be

hypothesized that the outdoor cultivated *A. brasiliensis* (KA21) may have potential hair regeneration properties for humans, dogs, cats, as well as mammalian species. As such, there may be significant therapeutic implications for hair growth and regeneration caused by stress, aging, and drug administration.

Keywords: hair growth, *Agaricus brasiliensis* (KA21)

PS-S7-4: *Laetiporus sulphureus* - Culinary - Medicinal Mushroom: Investigation of Its Anticancer Potential

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Colon cancer is one of the most common cancers with the highest incidence in Australia, New Zealand, North America and in Europe, while the least frequent in the inhabitants of South-Central Asia and Africa. Differences in the incidence of the disease can be associated with different genetic susceptibility, environmental factors and diet. Among the environmental factors predisposing to the development of colorectal cancer, attention is paid particularly to potentially modifiable factors such as: Obesity, diabetes, alcohol abuse, smoking, lack of physical activity and a high-fat diet with a large content of red meat. Currently, there are no medications or food aimed at reducing the morbidity of cancer. For this reason, the incidence of colon cancer is constantly increasing. Currently, anticancer drugs available on the market are not specifically targeted. In addition, they have numerous adverse effects, which underlines the need for novel effective and, above all, less toxic preparations, e.g. from natural products. As such, medicinal mushrooms and their derivatives are expected to play an important role in prevention of human cancer or therapy supporting by developing innovative agents, as they have a variety of physiologic effects valuable for a chemoprevention program. It has been said that medicinal mushrooms are among the most commonly prescribed natural products with data from controlled clinical trials suggesting possible benefit in cancer treatment. *Laetiporus sulphureus* (Bull.) Murrill is a cosmopolitan wood-rotting basidiomycete, present on almost all continents. It is widely distributed in Europe and North America. It attacks and colonizes both living tree trunks and dead wood of deciduous species, such as *Aesculus* sp., *Populus* sp., *Quercus* sp., *Robinia* sp.. However, *L. sulphureus* has been used for centuries in traditional medicine, where it was valued for its antipyretic, antibacterial, antioxidative, antitussive and antirheumatic activity. Our study focused on the anticancer potential of *L. sulphureus* derived from various hosts (*Quercus*, *Robinia*, *Salix*, *Populus*, *Fraxinus*). The study