

# **Fermentation characteristics of novel *Coriolus versicolor* and *Lentinus edodes* kombucha beverages and immunomodulatory potential of their polysaccharide extracts**

## **Abstract**

Medicinal mushrooms, *Coriolus versicolor* and *Lentinus edodes* are extremely attractive as nutraceuticals. Here we used fruiting bodies to prepare novel kombucha beverage.

Microbiological, physicochemical and chemical properties were monitored for eleven days, while the immunological properties of kombucha polysaccharide extracts were determined in peripheral blood mononuclear cell (PBMC) cultures. FTIR analysis of polysaccharide extracts showed dominant presence of polysaccharides, in addition to phenols, lipids and proteins. *C. versicolor* kombucha extract displayed more complex polysaccharides, and a higher content of total polysaccharides, phenols and flavonoids compared to *L. edodes* kombucha extract. The extracts were not cytotoxic for PBMC *in vitro* up to 500 µg/ml, while immunomodulatory effects depended on their chemical compositions. The most prominent effect was on the reduction of Th2 cytokines and IL-10 in PBMC cultures. Based on these results, novel kombucha products could be recommended as functional beverages or nutraceuticals with potentially beneficial immunomodulatory effects in allergies.