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Livro de Resumos do XV Encontro de Química dos Alimentos: Estratégias para a Excelência, Autenticidade, Segurança e Sustentabilidade Alimentar

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PC-D49: Peptide-rich extracts from spent yeast waste streams as a source of bioactive compounds for nutraceutical market

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The growing brewing industry[1] generates increasing amounts of spent yeast from its fermentation processes. To apply a circular economy concept, spent yeast can be used to produce ingredients from yeast cell wall such as β-glucans and mannans[2] whereas the remaining fractions are further processed to recover proteins and peptides. The high protein content of spent yeast (about 45-60%), including essential amino acids with high biological value, low cost and safety, are primarily responsible for its use in agri-food sector. Meanwhile, cosmeceutical and health sectors have also been working on yeast bioactive peptides because of their antihypertensive, antioxidant and antimicrobial properties, among others. In fact, peptides have been described as bio-functional ingredients in the nutraceutical and functional food market, and due to fewer side-effects when compared with synthetic drugs, they are becoming an option in health sector as well. To evaluate the potential of the abovementioned peptide fractions as a source of bioactive ingredients for nutraceutical market, they were chemically characterized in terms of protein amount, molecular weight (MW) distribution (***Figure 1***) and amino acid content, being their biocompatibility with specific colon cell lines evaluated as well. Furthermore, their potential to provide antihypertension, antioxidant, antimicrobial and anti-cholesterolemic activities were assessed. Results revealed that different yeast peptides fractions showed IC50 values between 0.99 and 1.72 mg/mL in ACE inhibition assay, highlighting the peptide fraction under 1 kDa with the greatest antihypertensive activity. On the other hand, the same fractions showed a 62 to 71% of inhibition of the enzyme HMG-CoA reductase using an HMG-CoA Reductase Activity Assay Kit for testing. Together, both results pave the way for their application in nutraceutical products.

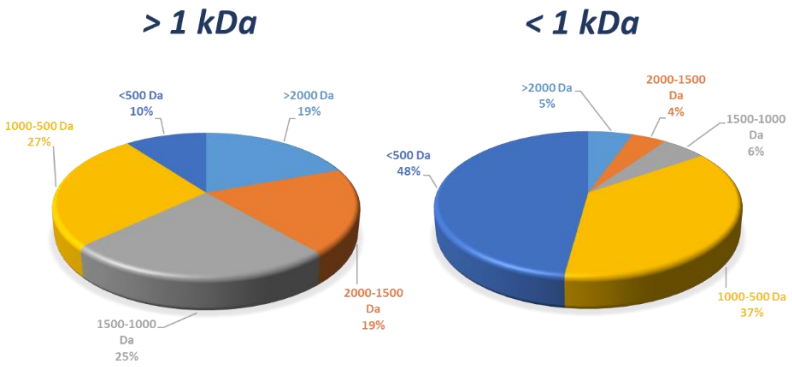

***Figure 1**: MW profile of peptides fractions derived from waste streams of yeast mannan extraction processes.*

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