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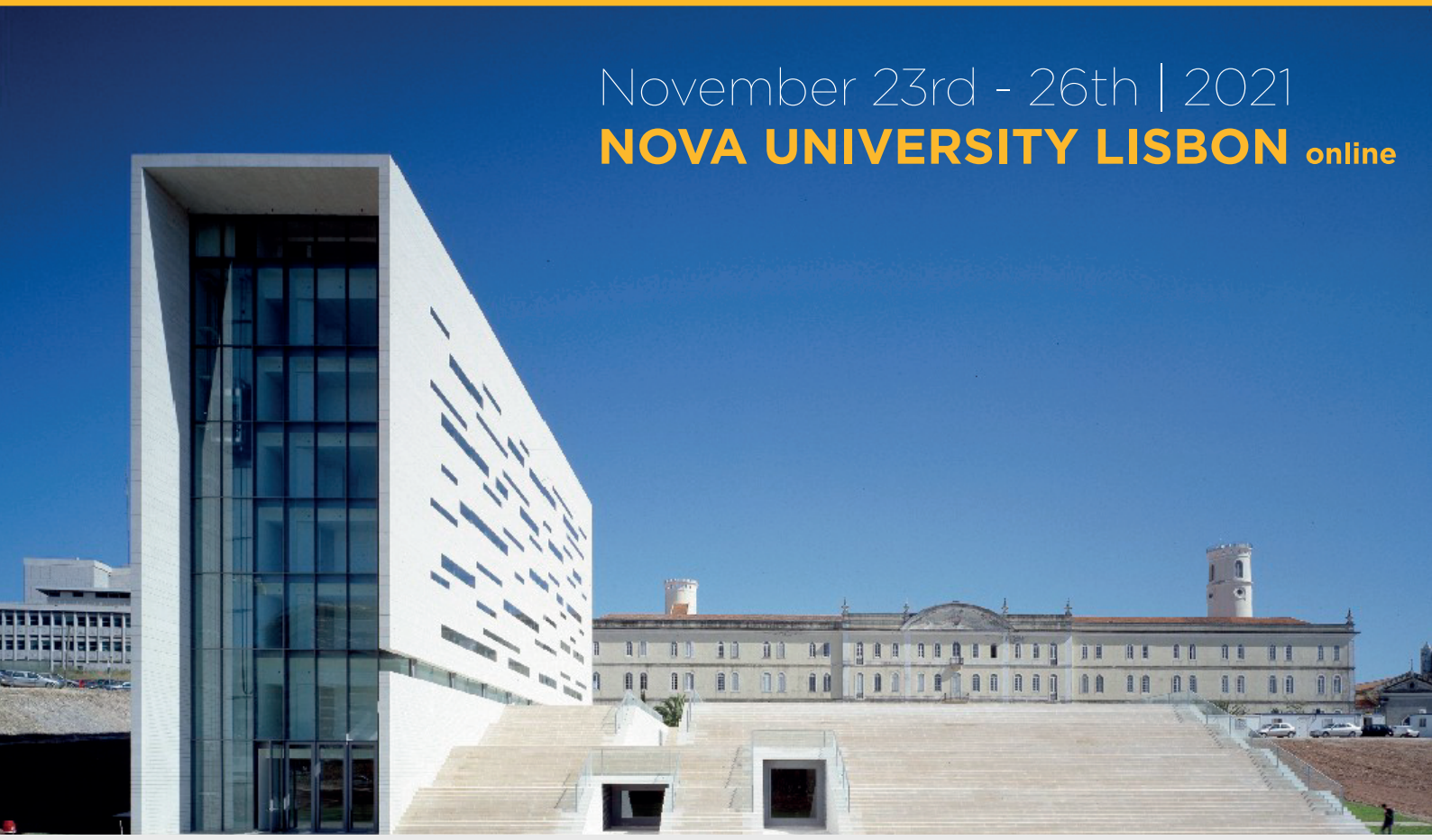

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351. Antimicrobial potential of formulations, incorporating spent yeast derived from synthetic biotechnology, against *Pseudomonas spp.*

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Yeasts are currently used as cell factories for the sustainable production of high value biomolecules for applications in the pharmaceutical and cosmetic sectors. However, the production of such molecules through fermentation, conducted in bioreactors and making use of genetically engineered yeast strains, generates a number of waste-streams, with spent yeast as the second main by-product of fermentation processes, representing more than 20% of the total waste produced. Since this by-product is rich in several molecules including proteins, vitamins and several minerals, being also a natural source of glucans and mannoproteins with known bioactivities, it is of interest to develop valorization strategies for these residues. In this work, spent yeast was autolysed and a set of formulations, incorporating the resulting supernatant and pellet at different concentrations, were tested as potential antimicrobial solutions to prevent diseases in plants and fungi caused by *Pseudomonas spp*. The formulations were initially tested against *P. aeruginosa* and then against *strains* affecting cultivated mushrooms (*Agaricus bisporus*), *P. tolaasi,* and *P. agarici;* and a number of *P. syringae* strains responsible for plant diseases including the pathovars a*ctinidifoliorium*, *tomato*, *pisi*, *syringae* and *atrofaciens*. It has been recently shown that spent yeast hydrolysates possess antimicrobial activity against *Salmonella enterica*, *Aeromonas salmonicida*, *Bacillus cereus* and *Bacillus subtilis* (Martin et al. 2021), suggesting that spent yeast extracts may have potential antimicrobial effect against a range of microorganisms. To date, there are no studies showing the potential of spent yeast extracts against *Pseudomonas* strains. The results showed that the supernatant of the autolyzed yeast at 0.1% inhibited the growth of *P. aeruginosa* by about 20% and *P. tolaasii* by 10% but increased the growth of *P. agarici* by up to 34%. The combination of supernatant with lactose also slightly increased *P. tolaasii* growth inhibition (12%) but it reduced the inhibitory effect of supernatant against *P. aeruginosa*. With regard to plant pathogens, the formulations containing 0.1% and 0.3% of pellet inhibited by 25% the growth *P. syringae pv. actinidifoliorium,* the bacterium responsible for kiwi canker, but for all the other pathovars, the inclusion of spent yeast extracts in the formulation induced bacterial growth. Among all the tested formulations, the ones including

supernatant and pellet at low concentrations were the most promising leading to slight growth inhibition of some environmental *Pseudomonas spp*.