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Potential mycotoxigenic fungi in Chilean buttery cheese

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Important fungi can grow on cheese (e.g. *Penicillium*, *Aspergillus*, *Cladosporium*, *Geotrichum*, and *Trichoderma*). Cheeses such as Camembert and Roquefort are intentionally inoculated with fungi (e.g. *Penicillium camemberti* and *P. roqueforti*). These two fungal species play a significant role in appearance, texture, and flavour development of fungal-ripened and blue-veined cheeses. Moreover, both of these fungal species are also known for their potential ability to produce several mycotoxins. The most hazardous mycotoxins found in cheese, Ochratoxin A and Aflatoxin M1, are produced by unwanted fungal species either via direct cheese contamination or indirect milk contamination. Cheese is an important agro-food product for the Chilean bioeconomy. In January 2017, the exportation of Chilean cheese reached 996 tonnes, 93% more than in January 2016. Mexico was the biggest importer of Chilean cheese in this period (46%). There is no clear information on the literature about the impact of mycotoxigenic potential of the indigenous fungal population on cheese produced in the different Chilean Regions. Therefore, the main aim of this work was to assay the mycobiota associated with buttery cheese in Chile, focusing on the potentially mycotoxigenic fungal genera. Twenty-eight samples of buttery cheese were obtained from different supermarkets located in two cities in southern Chile (Temuco and Valdivia). Isolated fungal strains were identified using classical macro- and micromorphology and MALDI-TOF MS techniques. In general, within the results, 2 genera of dominant fungi were observed in this study. In cheese samples from Valdivia *Penicillium* was the most dominant genus, with 97% of the total fungal strains isolated (90 strains); followed by *Aspergillus* (2%, 2 strains) and *Fusarium* (1%, 1 strains). On the other hand, for the cheese samples from Temuco the most predominant genus was *Aspergillus* with 70% of the total fungal strains isolated (40 strains), followed by *Penicillium* (17,5%, 7 strains), *Fusarium* (10%, 4 strains) and *Geomyces* (2.5%, 1 strains). In order to obtain a reliable fungal identification at the species level, a molecular biology analysis is currently underway. These results demonstrate the importance of knowing even more the mycobiota and the mycotoxigenic fungi present in the buttery cheese marketed and produced in Chile.

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