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Mycobiota in Chilean traditional chilli used for Merkén production

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In Chile, *Capsicum annum* L. cv. “Cacho de Cabra” berry fruits are used for the manufacture of a traditional chilli powder known as Merkén. The agricultural practices used by Merkén local producers are empirical and do not consider the mycotoxigenic fungi prevention. Therefore, the main goal of this study was to identify the mycobiota and the possible mycotoxigenic contaminations at different points in the Merkén production chain. Samples of *C. annum* were obtained from local farmers of the South Zone of Chile. Samples were collected: 1) just at the day of ripe fruits harvest; 2) drying process; and 3) at the smoking process. Mycobiota were isolated on Petri plates of Malt Extract Agar (MEA), Dichloran Rose Bengal Chloramphenicol Agar (DRBC) and Dichloran Glycerol Agar 18% (DG18). Isolated fungal strains were identified using classical morphology and molecular biology techniques. For the classical taxonomy, macro and micro morphology traits were assessed. For molecular identification, BLAST used β -tubulin (*benA*) and Internal Transcribed Spacer (ITS) sequence were performed for all fungal strains. All sequences were compared with the GenBank database. A total of 192 fungal strains belonging to 9 genera distributed among 206 different species were identified. From these, 61 fungal strains were isolated from the chilli samples at the day of ripe fruits harvest (25 *Penicillium*, 14 *Fusarium*, 9 *Alternaria*, 7 *Aspergillus* and 6 others species). In addition, 46 fungal strains were found after 1 month of harvest (24 *Penicillium*, 12 *Aspergillus*, 7 *Alternaria* and 3 others species), and 85 fungal strains were found at the smoking process (63 *Penicillium*, 18 *Aspergillus* and 4 others species). Overall, these results show that the mycobiota present in *C. annum* berry fruits during its production process for the Merkén is increasingly selective for occurrence of *Aspergillus* and *Penicillium* species. In order to establish critical control points for a safe and high-quality product, these results demonstrate the importance of knowing even more the mycobiota and potential mycotoxigenic fungi present in each stage of *C. annum* berry fruits production, which is used for the Merkén production.

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