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High throughput screening of hydrolytic enzymes of *Aspergillus* section *Nigri* strains

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Biological Resource Centres (BRCs) and culture collections are essential components of the infrastructures for scientific research and industry and their establishment and maintenance depends on the implementation of reliable preservation techniques and appropriate quality assurance to allow them to become effective and efficient. Fungal strains identification and characterisation are important tasks within the context of BRC. Using a polyphasic approach for identification, allows the increment of associated information for every fungal strain. With this in mind and to harness the experimental based knowledge for scientific research on filamentous fungi, specifically the *Aspergillus* section *Nigri*, the enzymatic activity of this section was assessed by screening the activity of a set of enzymes, using several methods, in which one is based upon miniaturized cell cultures and automated expression screening in microwell plates. *Aspergillus* use mainly polysaccharides as a carbon source, which they need to degrade before using as substrates. Some of these polysaccharides can be split in three major groups: cellulose, hemicellulose (xylan, galactomannan and xyloglucan) and pectin. For the degradation of the referred plant polysaccharides, fungi produce a broad range of hydrolytic enzymes with different and complementary catalytic activities that can be screened for each fungal strain. Some of these enzymes have a large industrial potential and studying enzymatic profiles, exploring the biopotential of fungal strains supports research on their application. The chosen medium for the growth of the targeted strains was adequate to determine, evaluate and screen the enzymatic profiles for the four targeted enzymes: carboxymethyl cellulase, xylanase, pectinase and mannanase. The enzymes analyzed in this screening assay were present in most of the *Aspergillus* strains tested. The obtained results allow to better differentiate between the studied fungi and to complement the information about each fungal enzymatic profile of interest for the MUM - Micoteca da Universidade do Minho – culture collection and also to add information for research on the different preservation protocols as a mean of analysing the post-preservation characteristics of the fungi.