

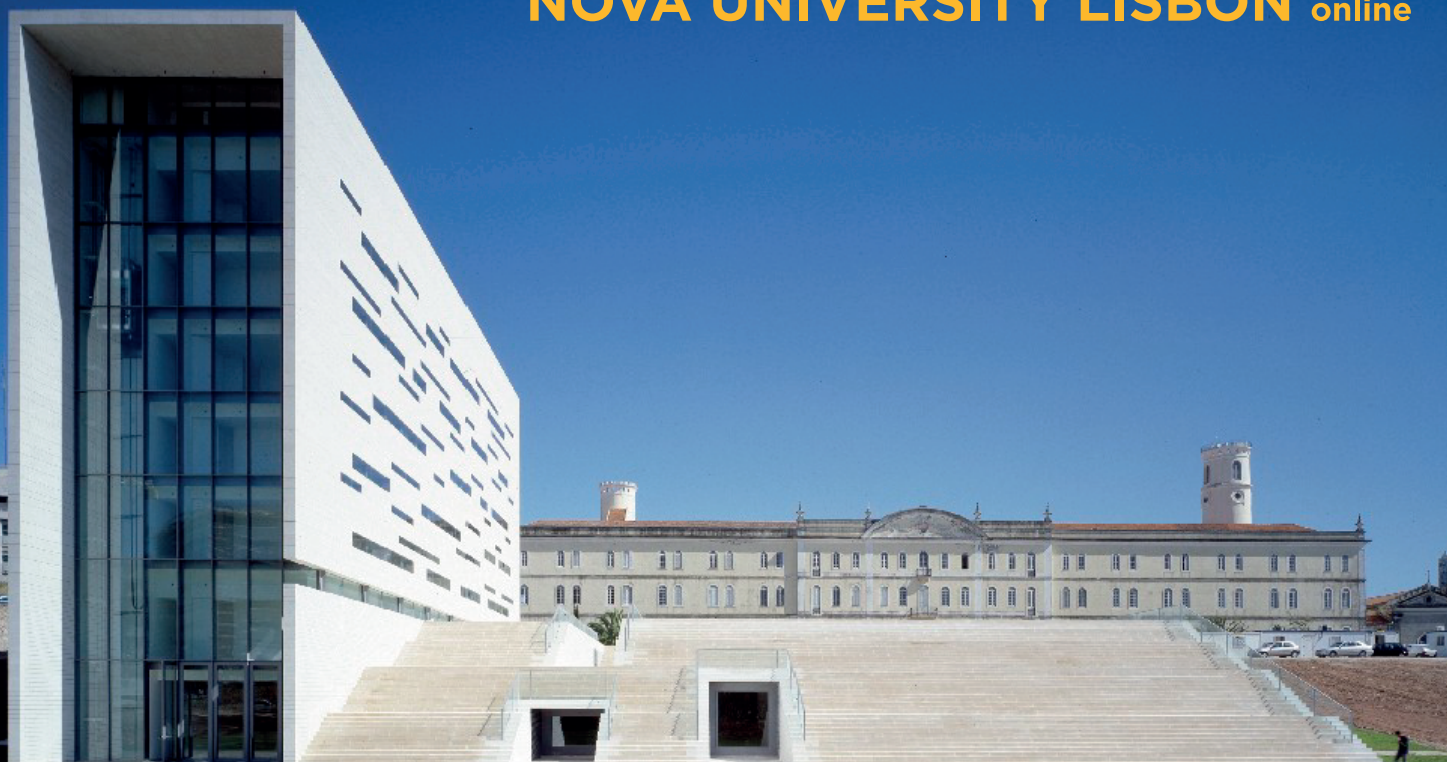
# MICROBIOTECH 21

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## Abstracts Book

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## 3.5 Biotech4food – Nutrigenomics, Personalized Nutrition and Food Production

### 106. Comparison of dietary fiber content of carob (*Ceratonia siliqua L.*) flour as related to seed presence and roasting effects

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Carob fruit originates from the carob tree, a leguminous evergreen tree (*Ceratonia siliqua L.*) cultivated in the Mediterranean area, namely in Portugal, with high relevance in production and low prices. Carob pods contain various relevant nutrients that include proteins, carbohydrates and fiber, as well as phytochemicals such as polyphenols, conferring great potential for carob pods to be used as functional ingredient. This study focused on extracting, by a thermal-enzymatic process and characterizing, by HPLC, the dietary fiber (DF) content for carob powders with and without seed at different roasting temperatures. An initial nutritional evaluation on carob powders (CPs) indicated that seed presence led to higher content in macronutrients. The CPs processed at 150 °C showed significantly higher content in neutral sugars (NS). As for the determination of DF content, results indicated that the main fiber fraction present in all samples was insoluble dietary fiber (IDF) corresponding to 98.4 % of total fiber content. The uronic acid content was significantly higher in IDF, for both roasting temperatures. The Klason lignin was higher for CPs processed at 150 °C and represented, in all cases, 50 % of total IDF. The DF were also evaluated for antioxidant activity and phenolic content. The total phenolic content (TPC), determined by Folin-Ciocalteu, was twice on IDF as high at 150 °C than 80 °C, probably due to the formation of certain Maillard reaction products (MRPs), or certain phenolics that may degrade during roasting. The free phenolic content was significantly affected by the roasting temperatures and seed presence. The antioxidant activity is correlated with TPC, increasing in IDF when the flour was roasted at 150 °C. These findings could put in the best light the utilization of DF in food industry according to the requirement of the final product and can also incline the interest of consumers towards the less utilized carob flours.

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