



BIOACTIVES COMPOUNDS IN BLACK GARLIC FROM DIFFERENT BRAZILIAN CULTIVARS

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ABSTRACT

Garlic has been widely used in cooking for centuries, and has a strong flavour and pungent odour. It has been found to be high in fibre, minerals and amino acids, but its composition depends on cultivar, growing conditions and maturity of the bulb. Black garlic is produced by biochemical reactions during ageing process, forming different constituents with antimicrobial, anti-inflammatory, antithrombotic and anticancer properties. In this context, this work aimed to study the differences of bioactive compounds produced in black garlic from Brazilian garlic cultivars (Santa Catarina, Amarante, Gigante Roxo). Whole garlic bulbs were produced at cycled temperatures for 40 days according to Maldonado et al. (2012). Black garlic (BG) extracts were prepared by two different solvents (water and methanol) by grinding 0.5 g of bulb samples in a mortar and pestle with 20 mL of methanol:water at 10:90 (v/v) or only water at 25°C. After 5 minutes, samples were centrifuged at 7000xg and the supernatant was used to determine the total soluble solids (TSS), pH, titratable acidity, weight, firmness, total phenolic compounds (Folin-Ciocalteu), activity of alliinase and quercetin, according to AOAC methods. The data showed that water was the best solvent to extract quercetin and polyphenols. In all cultivars the pH decreased: Amarante (from 6.7 to 4.0), Gigante Roxo (from 6.8 to 5) and Santa Catarina (from 6.8 to 3.8). Santa Catarina cultivar presented the best characteristics for black garlic production, which had TSS content enhanced from 22% to 47% and had the highest concentration of phenolic compounds (602 mg GAE 100 g⁻¹).