Mushrooms have been part of the normal human diet for thousands of years and, in recent
times, the amounts consumed have risen greatly, involving a large number of species. Besides
the nutritional properties, mushrooms have been demonstrated to possess healthy properties.
In this study, three varieties of mushrooms were evaluated: champignon, shimeji and shiitaki.
Absolute methanol was used to obtain the crude extracts of the mushrooms (1:20, w/v). The
total phenolic compounds of the mushrooms were determined using the Folin-Ciocalteau
method. Flavonoids were estimated using the colorimetric method with aluminium chloride and
the pH differential assay was used to quantify the total anthocyanins in the samples.1,1-Diphenyl-2-picrylhydrazyl radical (DPPH*) scavenging activity and coupled autoxidation of β-
carotene and linoleic acid assays were used to obtain the EC50 values of the samples. Reverse-phase high-performance liquid chromatography with diode-array detection (RP-HPLC-
DAD-UV/Vis) was used for the separation and identification of phenolic compounds in the
mushrooms extracts. Among the three mushrooms studied, champignon presented the highest
concentration of total polyphenols (6.40 ± 0.22 mg GAE/g dry basis) and flavonoids (2.36 ± 0.19
mg CE/g dry basis). Anthocyanins were only detected in the sample of shimeji (2.54 ± 0.13
mg/100g dry basis). The mushroom with the highest antioxidant potential was shiitaki (EC50
values of 16.83 ± 0.31 µg/mL and 26.46 ± 0.37 µg/mL in the DPPH* and in the β-carotene/
linoleic acid assays, respectively). Different polyphenols were identified by HPLC analysis in
each sample. The highest concentration was found in champignon, being rutin significantly
present.