The biodiversity of Aspergillus section Flavi in brazil nuts: From rainforest to consumer -
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A total of 288 brazil nut samples (173 kernel and 115 shell) from the Amazon rainforest region and São Paulo State, Brazil were collected at different stages of brazil nut production. Samples were analysed for: percentages of aflatoxigenic fungal species and potential for aflatoxin production and presence of aflatoxins. Aspergillus nomius was the most common species found (1235 isolates) which amounted to 30% of the total species with potential to produce aflatoxins. This species is of concern since 100% of all isolates produced aflatoxins B1, B2, G1 and G2. Aspergillus flavus was almost equally common (1212 isolates) although only 46% produced aflatoxins under laboratory conditions, and only aflatoxins B1 and B2. Low number of other species with the potential to produce aflatoxins was isolated: Aspergillus arachidicola and Aspergillus bombycis produced B and G aflatoxins whilst Aspergillus pseudotamarii produced only aflatoxin B1. The total aflatoxin levels found in samples taken from the rainforests was 0.7μg/kg, from processing plants before and after sorting 8.0 and 0.1μg/kg respectively, from street markets in the Amazon region 6.3μg/kg and from supermarkets in São Paulo State 0.2μg/kg. Processing, which included manual or mechanical sorting and drying at 60°C for 30 to 36h, eliminated on average more than 98% of total aflatoxins. These results showed that sorting is a very effective way to decrease aflatoxin content in brazil nuts.

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