ABSTRACT
Recurrent outbreaks of Aflatoxin (AF) poisoning in maize continue to exacerbate the food security crisis in Sub-Saharan Africa. This study determined the distribution and contamination levels of Aspergillus spp. and Aflatoxin B1 (AFB1) in soil, maize and maize-based products. Maize grain samples (n=256), semi-processed grain (n=56), flour (n=52), hammer mill dust (n=11), and soil (n=117) were collected during the 2008 and 2009 growing seasons. Aspergillus spp. was isolated and AFB1 was determined by Enzyme-Linked Immunosorbent Assay (ELISA). Aspergillus flavus was frequently isolated in maize samples from the semi-arid regions. The frequency of A. flavus was higher in semi-processed grain than in whole grain and packed flour samples. AFB1 was not detected in samples from the humid regions. AFB1 was detected at levels exceeding the Kenyan legal limit of 10 μg/kg in 20% of the samples, at maximum of 136 μg/kg for semi-processed maize, 77 μg/kg for whole grain and 41 μg/kg for flour sold in open bags. The high temperature and periodic drought prevalent in the semi-arid regions could explain the higher levels of A. flavus and AFB1 contamination in that climate. In addition, unfavourable drying and storage practices may aggravate the problem. Therefore, it is recommended that the careful monitoring of AF be continued.
Key words: Aspergillus flavus, aflatoxin B1, aflatoxicosis, maize