

## Abstract

This study was carried out to determine the temporal effect of the antioxidants butylated hydroxyanisole (BHA) and propyl paraben (PP) at doses of 500 and 1000  $\mu\text{g/g}$  on the growth of *Fusarium verticillioides* and *F. proliferatum* inoculated on natural maize grain in the presence of the competing mycoflora and fumonisin production at 0.98 and 0.95 water activity ( $a_w$ ) over a 28-day storage period. The reduction in the log colony forming units (CFU) of *Penicillium*, *Aspergillus* and *Fusarium* populations was 10–100 fold depending on dose of BHA or PP,  $a_w$  and time. However, the populations of all three groups were higher at 0.98  $a_w$  than 0.95  $a_w$ . BHA at 500  $\mu\text{g/g}$  and 0.95  $a_w$  reduced the fumonisin content by 82% after 7–14 days incubation, but at the end of the experimental period the reduction was only 32%. A higher reduction in the level of fumonisin produced (77%) was achieved with BHA at 1000  $\mu\text{g/g}$  after 28 days. PP at 500 and 1000  $\mu\text{g/g}$  decreased fumonisin production throughout the incubation period in the drier treatment, but at 0.98  $a_w$  control of toxin production was only achieved after 7–14 days. The reduction in the fumonisin levels could be due to the combined effect of antioxidants, and the competing mycoflora, mainly *Aspergillus* and *Penicillium* species.