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Structure modification of a thiosemicarbazone derived compound increases its anti aflatoxigenic activity and give insights on the mechanisms controlling toxin accumulation

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Aspergillus flavus is an opportunistic mould that represents a serious threat for human and animal health due to its ability to synthesize and release, on food and feed commodities, different toxic secondary metabolites. Among them, Aflatoxin B1 is one of the most dangerous since it is provided with a strong cancerogenic and mutagenic activity. Controlling fungal contamination on the different crops that may host *A. flavus* is considered a priority by sanitary authorities of an increasing number of Countries due also to the fact that, owing to global temperature increase, the geographic areas that are expected to be prone to experience sudden *A. flavus* outbreaks are widening. Among the different pre- and post-harvest strategies that may be put forward in order to prevent fungal and/or mycotoxin contamination, fungicides are still considered a prominent weapon. We have here analyzed different structural modifications of natural-derived thiosemicarbazones for their fungistatic and anti-aflatoxigenic activity. In particular we have focused our attention on compounds that presented a prominent anti-aflatoxin specificity, and performed a set of physiological and molecular analyses, taking also advantage of yeast (*Saccharomyces cerevisiae*) cells as an experimental model.