Poisonous carcinogens called Aflatoxins can be produced when food crops are infected by certain species of the fungus Aspergillus. Consumers in the developed world are largely protected from exposure to these dangerous natural compounds through pest control and product screening. Unfortunately, in the developing world, aflatoxins are frequent contaminants in staple foodstuffs such as maize and groundnuts (peanuts).

There is new hope for a solution to this vexing health issue based on a recent collaboration between groups of scientists in the US and in India. They have developed peanut cultivars that are nearly immune to aflatoxin contamination. This breakthrough was achieved by combining the effects of plant “defensins” to limit infections by the fungus, and “host induced gene silencing” using inhibitory RNAs that interfere with toxin production by any of the fungus that does manage to infect. These peanut lines can now be cultivated and crossed with the existing varieties to extend this protection, particularly in the areas of sub-Saharan Africa and Southeast Asia where peanuts are a key part of the locally grown food supply.

This breakthrough is described in a new paper published in the Plant Biotechnology Journal. The twelve authors represent three teams of researchers from the USDA Southern Regional Research Center in Louisiana, the Donald Danforth Plant Science Center in Missouri, and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India. Read more.