B-71 Screening of microorganisms from food sources to control potentially toxigenic fungi in coconut products

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Fresh coconut kernels were exposed to ambient environments and invading fungi were isolated. They were identified by 2 methods: microscopic examination of scrapings, surface sterilizing (0.3% NaOCl) and plating on agar. Morphology and colony characters were studied on several different media.

The initial invaders were 5 spp. of *Aspergillus* (affecting > 90% of kernels) and 3 spp. of *Penicillium* (affecting < 35% of kernels). Other fungi seen ~4 days later, included *Fusarium* sp (~20%). *Rhizopus* sp (~90%). Except *Rhizopus* others are potential mycotoxin producers.

Bacteria and yeast (i.e. potential biocontrol agents - PBAs) were isolated from the following: curd, yogurt, Kampucha tea, boiled fermented sesame *(Sesamum indicum)* seeds (Ogiri), coconut water, slurries of flours of black gram *(Vigna mungo)* and rice flour. By inoculating fresh agar plates with each of the PBA isolated, along side potentially mycotoxigenic fungi isolated, the ability of the PBAs to control fungal growth was assessed. 3 bacteria *(Erwinia herbicola, Flavobacterium* sp, *Bacillus macerans* from rice flour), and a yeast *(Candida lusitaniae)* and an unidentified bacterium (from coconut water) were selected.
A delayed sporulation (by approx. 5 days) in the fungi was seen when fungi were inoculated to coconut (scraped and pieces) preinoculated with each PBA. Slide germination assays were conducted with a conidial suspension of *Fusarium* sp, in cell suspensions of each of the PBAs and in their cell free culture filtrates (CFCFs) separately. The reduction in spore germination in the presence of cells ranged from 60-80%. This range was higher in the presence of the CFCFs.