

# FOOD SAFETY & REGULATORY MEASURES

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## Association between ochratoxin A concentration and coffee beans characteristics

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**Background:** Ochratoxin A (OTA) is a toxic fungal metabolite produced by *Aspergillus* and *Penicillium* species which contaminate coffee beans during processing, storage or transportation.

**Aim:** The aim of the study was to investigate if the ochratoxin A levels in the coffee beans can be associated with the geographical source, moisture and caffeine content or level of roasting.

**Methodology:** 16 samples (four mild roasted+four medium roasted+four dark roasted+four decaffeinated) each from three different countries (UAE, Brazil and Turkey) were analyzed for moisture (loss on drying method), caffeine (selective solvent extraction method) and OTA (ELISA technique) concentration.

**Findings:** The OTA levels ranged from 409 to 742 ng/100 g in coffee bean samples from different countries. Decaffeinated beans had minimum moisture (0.7%) and caffeine content (0.02%), whereas mild roasted beans had highest the moisture (2.83%) and caffeine content (1.3%). In UAE samples, the OTA concentration was significantly lower in decaffeinated samples and moderate roasted beans as compared to mild or dark roasted beans, but significantly higher in decaffeinated samples and dark roasted beans from Brazil and Turkey ( $p < 0.01$ ).

**Conclusion & Significance:** The OTA levels showed a positive relationship with moisture and a negative relationship with caffeine content with quantitative differences between samples from different countries. The fungal growth and OTA content can be evaded by monitoring factors such as temperature, humidity, storage condition, processing, harvesting, transportation etc. thus refining the quality of coffee beans. The OTA content present in the tested coffee beans was within the acceptable daily intake limits posing minimum health risk to the consumers.

### Biography

Anoop Kumar Agarwal is an Associate Dean and Professor of Pharmacology at Gulf Medical University (UAE) with more than 25 years of experience in Teaching and Research. He has supervised several student studies in Pharmacology, Toxicology and Clinical Research apart from his expertise in Psychopharmacology. He has presented his work at several international conferences and has over 50 publications to his credit. He represents various university committees and has been a resource person in several workshops and seminars. He is currently associated with three different university projects.

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