



Food & Allergy Consulting  
& Testing Services

## HERB & SPICE AUTHENTICATION MICROSCOPIC ANALYSIS



### ARE THERE PAW-PAW SEEDS IN MY PEPPER CORNS OR CITRUS LEAVES IN MY ORGANUM?

Food fraud and proving the authenticity of foods has become a growing concern for the food industry the world over. In the past we have seen food fraud take place such as Melamine in milk, Sudan red in spices and unexpected horsemeat.

The herbs and spices category has also been a victim of food fraud. In 2014 unlabelled peanut was found

in spices like cumin and paprika by Canadian and US authorities resulting in product recall on a large scale. In 2016, another case found Oregano being contaminated with olive, myrtle and citrus leaves.

Current methodologies to identify the presence of undeclared substances in herbs and spices can include microscopy, organoleptic and analytical testing. FACTS has extended their current testing catalogue to include microscopy analysis for this purpose.

### MICROSCOPIC REVIEW OF SPICES & HERBS: RECENT CASE STUDY

**BRIEF:** "Please confirm that the peppercorn sample is not contaminated / adulterated with an undeclared material and advise which material it is possibly adulterated with".

**FINAL RESULT:** The microscopic examination confirmed the authenticity of the spice sample Black pepper (whole) 10g as the spice Black pepper. There was no indication that the sample is adulterated or contaminated with another herb or spice.



**METHOD:** Papaya seeds are a common contaminant of black pepper, and as such were used as a control sample. Black pepper is a monocotyledon (seeds which typically contain only one embryonic leaf or cotyledon); papaya is a dicotyledon (seed which typically contain two embryonic leaves or cotyledons). The microscopic examination of the papaya seed (control) and black pepper corn (sample provided) showed the typical profiles of a dicotyledon (right) and monocotyledon (left).

The photomicrograph (left) taken by FACTS illustrates the difference between the cross section of black pepper and papaya seeds.

For more information about our services or how we may assist you and your company to validate the authenticity of your herbs and spices, please contact FACTS.

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