SANICHEM RESOURCES

MS ISO/IEC 17025 TESTING SAMM No. 519

Chemical
Medical Devices
Food
Halal
Environmental
Training & Consultation

Bird Nest Testing

INFORMATION ON BIRD'S NEST EXPORT TO CHINA:

Last year, in 2011, China banned the import of edible bird's nests from Malaysia due to nitrite contamination. This contamination in bird's nests was discovered in August last year when the Zhejiang Provincial Administration for Industry and Commerce found excessive amounts of nitrite in edible bird's nests in Zhejiang. The tested bird's nest was found to be imported from Malaysia. Because of the contamination scandal, China and Malaysia had set up a working committee to determine the permissible level of nitrite in bird's nests in November 2011, with an eventual aim to overturn the ban on the export from Malaysia to China. At that time, the two parties had agreed that there should be no nitrite additive in Malaysia bird's nests export to China during the production but natural nitrite in the product will be allowed. The Chinese Government had said that only bird's nests with zero ppm of nitrite will be exported to China.

However, recently according to a statement by Malaysian Health Minister Datuk Seri Liow Tion Lai, China has recognised the presence of natural nitrite in bird's nests and it will lift the ban on the products from Malaysia after determining a permissible standard.

The Agreement is as follows:"There should be no nitrite additive in Malaysian bird nest exports to China during the production process. But Chinese authorities will allow the presence of natural nitrite in the product."

China has never had a standard for sodium nitrite in bird's nests, though ministry rules require one kg. of smoked or cured meat ***to not contain more than 30mg of sodium nitrite.*** *Thus this maximum permissible level can be applied to bird's nests.*

Ref.: www.foodnavigator-asia.com

Background on Nitrate and Nitrite in Edible Bird Nest

Nitrate (NO3 -) and nitrite (NO2-) are naturally occurring ions that are ubiquitous in the environment. Both are products of the oxidation of nitrogen by micro-organisms in plants, soil or water and, to a lesser extent, by electrical discharges such as lightning. Nitrate is the more stable form of oxidized nitrogen but can be reduced by microbial action to nitrite, which is moderately reactive chemically.

Studies have shown that nitrate are found in many types of food expecially meat products and vegetables. In fact it was shown that up to 90% of human dietary intake of nitrate come from vegetables which may contain up to two grams of nitrate per kilogram of vegetables. Nitrite, on the other hand are generally found in baked food and certain types of vegetables at much lower level at 2-4 mg per kg food. However, about 20% of nitrate may be converted to nitrite in the mouth by action of saliva and bacteria and more will be converted in the stomach. The toxicity of nitrate is generally due to its reduction to nitrite. Nitrite may react with some amine compounds to form N-nitroso compounds which were found to cause cancer in animal study and thus are suspected carcinogens. Based on many studys, health regulating bodies such as World Health Organization (WHO) has issue the allowable daily intake (ADI) of nitrate and nitrite to a maximum of 3.7 mg and 0.07 mg per Kg body weight respectively. Thus the allowable daily intake of a 60 Kg human is 222 mg for nitrate and 4.2 mg for nitrate per day.

The WHO allowable limit for nitrite in food is 34 ppm and under the Malaysian Standard for Edible Bird Nest, the allowable limit is set at 30 ppm for nitrite. China has recently adopted an allowable limit of 30 ppm (mg/Kg) of nitrite in imported edible bird nest. This limit

Bird Nest Testing

EBN Export Requirement

Background on Nitrate and Nitrite in EBN

Analysis of Nitrate and Nitrite in EBN

Analysis of Moisture Content in EBN

Bacteria count in EBN

Yellow Bird Nest

White Bird Nest

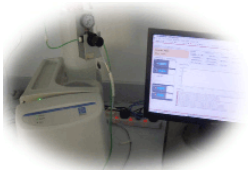
Bird Nest Testing Process

1. Bird Nest Samples (1 gram)

2. Extraction of nitrate and nitrite in hot water.

had been agreed with the Malaysian Government recently.
Recent study by the Department of Veterinary Services, Johor reported that most EBN produced in Johor contain levels of nitrites in excess of the allowable limit. Their finding is summarized in the table below. It is interesting to note that the percentage of uncleaned EBN containing 0-20 ppm nitrite was 57% while 32% contained 0-160 ppm nitrate. Upon cleaning, the percentage of 0-20 ppm nitrite increased to 62% and 0-160 ppm nitrate level was 81%.

3. Analysis of IC



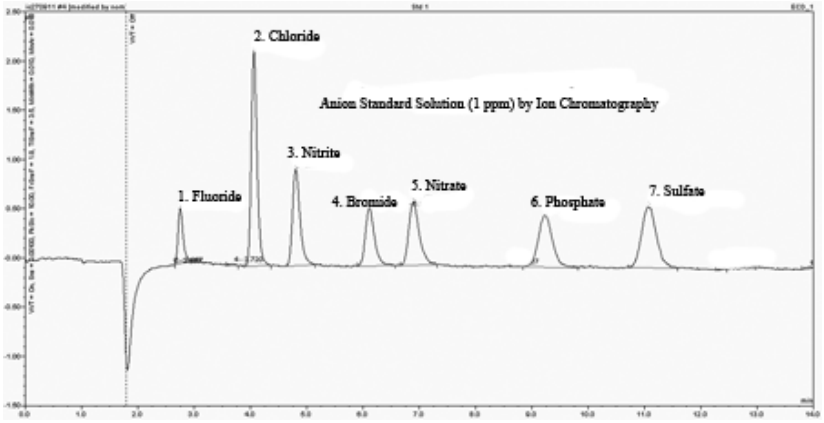
Samples	Nitrate (ppm)		Nitrite (ppm)	
	Average Conc.	Range	Average Conc.	Range
Uncleaned EBN	387.4	0 – 1,600	56.1	0 - 200
Cleaned EBN	87.5	0 - 600	37.4	0 - 400

Extracted from a paper by Dr. Kamaruddin Md Isa, Director DVS, Johor, 2012.

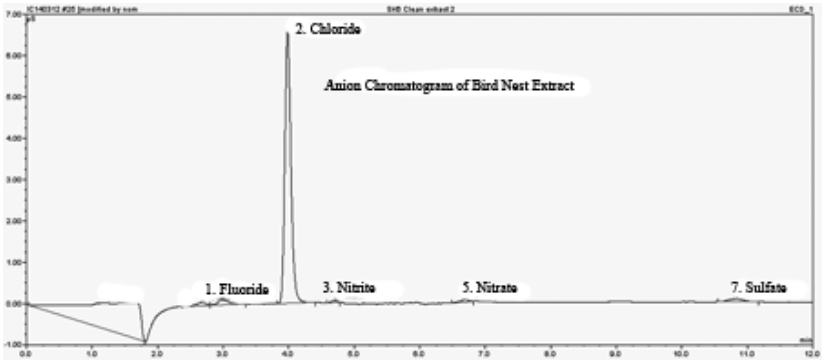
Analysis of Nitrate and Nitrite in EBN at Sanichem Lab

SaniChem offers analysis of nitrate and nitrite in bird nest by ion chromatography (IC). IC is a more sensitive method where a level as low as 0.1 ppm may be detected. Our method involves extracting the nitrate and nitrite from the bird nest matrices into solution and anlysing the solution for nitrate and nitrate and a few other anions such as chloride, sulphate and phosphate. Sample amount required is about 1 gram which should be dry as the export requirement. Each sample should be place in a separate small plastic bag, sealed and labelled before shipment to our laboratory. Depending on our workload, the turn around time is between one to five days. Please advise us before shipment.
The cost per analysis is very minimal. For large volume of samples, we will give volume discount. Please request for quotation.

Anion Standard (1 ppm) Chromatogram



Nitrate and Nitrate in EBN Extract



Analysis of Moisture or Water in Edible Bird Nest

Sanichem offer moisture content on finished product of processed EBN using Karl Fischer Titration. This test require about 1-5 grams of sample. For quality result, the sample should have undergone the cleaning and drying process and ready for export. The cost of analysis is RM 50.00 per sample and we give volume discount for large number of samples. Please contact us for more information.

Analysis of Bacteria and Fungus in Edible Bird Nest

Sanichem also offer determination of bacteria and fungi count in process bird nest sample for export requirement. The cost for bacteria count test is RM 30.00 per sample and for fungi count is also RM 30.00 and RM 50.00 for both bacteria and fungi count test. We use the membrane filtration method and require about 5 grams of sample for each test. Please contact us for more information.