OMICS International
conferenceseries.com

J Food Process Technol 2015, 6:9
http://dx.doi.org/10.4172/2157-7110.S1.027

International Conference on

Food Safety and Regulatory Measures

August 17-19, 2015 Birmingham, UK

A preliminary study on volatile organic compounds from heating empty nonstick pans

Guo Qian
Cypress Bay High School, USA

Preheating (empty heating) is an incorrect use of non-stick pans and is usually warned against on newly purchased non-stick pans' labels. This is because non-stick pan coatings may emit toxic volatile organic compounds (VOCs) into the atmosphere when over-heated. Surprisingly, the public awareness of this hazard is very low. This may be because most research in this regard was conducted within non-stick pan manufactories or Environmental Working Groups. Few researches were published in peer-reviewed journals. The purpose of this study is to develop a convenient method to collect and analyze VOCs emitted from heating pans in a real life simulation setting which in the future can be adopted in field research. It was hypothesized that heating a non-stick pan with water for 5 minutes will emit less potentially toxic fumes than heating empty. A Solid Phase Micro-extraction (SPME) fiber was used to collect the emitted VOCs and was then desorbed into a Gas Chromatograph-Mass Spectrometer to analyze its components. Three pans of the same model were tested forming 3 trials. The average relative peak areas of one potentially toxic VOC detected, benzoic acid was 10, 570, 370 (84.7 ng) when heating with water compared to 18, 658, 261 (139.3 ng) when heating without water, a 64% increase when heating dry. This confirmed the hypothesis. The progress and results of this study will help design large scale field research in the future which may raise public cautions against preheating non-stick pans.

Guoguoguo1@gmail.com

Understanding food additives: Parameters to consider in design of toxicity studies

Myra L Weiner
TOXpertise LLC, USA

Design of toxicity studies for food additives for regulatory and product safety purposes requires an understanding of their chemistry, physical/chemical properties and relevant oral dose administration to insure the most relevant study and results for human extrapolation. Studies of several food additives will be examined to illustrate common pitfalls in study design. Parameters considered essential for good study design and interpretation include identity/purity of the food additive; product reactivity and properties, nutritional components of dietand choice of vehicle including effects of the food additive on viscosity or reactivity of the dosing vehicle. The high dose is often limited by the physical/chemical properties of the additive and should be chosen based on these factors. Examples to illustrate proper study design will include food additive phosphate salts, hydrogen peroxide and carrageenan.

myra@toxpertise.com