

## **Occurrence and Spatial Distribution of Pesticide Residues in Butter and Ghee (Clarified Butter Fat) in Punjab (India)**

**Authors :** J. S. Bedi, J. P. S. Gill, R. S. Aulakh, Prabhjit Kaur

**Abstract :** The present study was undertaken to monitor organochlorine, organophosphate and synthetic pyrethroid pesticide residues in butter and ghee samples collected from six different districts of Punjab. The estimation of pesticide residues was done by multiple residue analytical technique using gas chromatography equipped with GC-ECD and GC-FTD. The confirmation of residues was done on gas chromatography mass spectrometry in both SIM and Scan mode. Results indicated the presence of HCH and pp DDE as predominant contaminant in both butter and ghee even after their ban/restriction on usage in India. Residues of HCH were detected in 25.5 and 23.2 % samples of butter and ghee, respectively, while residues of pp DDE were recorded in 29.3 and 25.0 % butter and ghee samples, respectively. More importantly, the presence of endosulfan, cypermethrin, fenvalerate, deltamethrin and chlorpyrifos was observed in few butter and ghee samples indicating the serious concerns. The spatial variation of pesticide residues occurrence indicated the cotton belt of Punjab as most affected.

**Keywords :** butter, ghee, pesticides residues, Punjab

**Conference Title :** ICFSNPH 2015 : International Conference on Food Safety, Nutrition and Public Health

**Conference Location :** Zurich, Switzerland

**Conference Dates :** July 29-30, 2015