



“Gheorghe Asachi” Technical University of Iasi, Romania



OCP_S AND PAH_S DISTRIBUTION IN DIFFERENT STAGES OF TOMATO GROWING

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Abstract

The presence of pollutants in food raises some serious questions concerning their potential impact on consumers health, being necessary to monitor their distribution in the environment. The present work provides data regarding levels of organochlorine pesticides (lindane, p,p'- DDT, p,p'- DDE, p,p'- DDD, HCB, aldrin, dieldrin, endrin and heptachlor) and PAHs: acenaphthene (Ace), acenaphthylene (Acy), fluorene (F), naphthalene (Np), anthracene (An), fluoranthene (Fl), phenanthrene (Ph), benzo[α]anthracene (B[α]An), benzo[k]fluoranthene (B[k]Fl), chrysene (Chry), pyrene (Py), benzo[ghi]perylene (B[ghi]Pe), benzo[α]pyrene (B[α]Py), dibenzo[α,h]anthracene dB[α,h]An, indeno[1,2,3-cd]pyrene (I[1,2,3-cd]Py) in tomato (*Solanum Lycopersicum*) in different stages of growing. Samples of tomatoes were collected from rural (*Slava Rusa*) and urban (*Constanta*) areas from Romania, belonging to Dobrogea region.

A Hewlett-Packard 5890 gas chromatograph (GC) equipped with an electron capture detector (ECD) and a HP-5 fused-silica capillary column was used for OCPs analysis, while for PAHs analysis, a Hewlett-Packard 5890 gas chromatograph (GC) equipped with a Hewlett-Packard 5972 mass spectrometer (MS) was used.

DDD, DDE and DDT concentrations were under detection limits and all OCPs concentrations recorded for studied samples were under the maximum limits imposed by European Commission.

A very wide range of PAH concentration was observed in studied samples. In tomato fruit from urban area the highest concentration was found for antracen (0.671 $\mu\text{g}/\text{kg}$). Benzo[α]pyrene concentration is a good marker of carcinogenic PAH levels in environmental samples and the maximum limit established by the Council Directive was 0.03 $\mu\text{g}/\text{kg}$ for foodstuffs. Some levels of BaP for studied samples were over the maximum limit.

Key words: GC-ECD; GC-MS; organochlorine pesticides; polycyclic aromatic hydrocarbons, tomatoes

Received: September, 2011; Revised final: January, 2012; Accepted: February, 2012

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