Greek olive oils contain no harmful levels of pesticides

There are concerns that pesticides which make their way into food products can have harmful effects on health. However, Greek researchers have tested a range of olive oils for pesticide residues and concluded that levels were sufficiently low in these samples and do not pose a health risk.

Olive oil production is a major agricultural activity in Mediterranean countries and a variety of pesticides are used to protect the olive crop from pests and diseases. It is possible a number of different pesticide residues could accumulate in olive oils. Consumption of olive oil is rising as people become aware of the benefits of eating a healthy diet. However, this means that consumers could be at risk from elevated exposure to these residual chemicals.

Researchers, partly funded by the EU programme, Pythagoras¹, examined 100 olive oil samples from the 10 main olive oil producing regions in Greece. 71 samples were taken from olive mills and 29 samples came from local markets. Ten of these samples were organic; the remainder were from conventionally grown crops. All samples were from crops grown in 2004-2005.

Tests were carried out for 35 pesticides, including endosulfan, which is no longer registered for use in olive cultivations. The researchers calculated the estimated daily intake (EDI) of pesticides in olive oil in adults and children. These figures were compared with the acceptable daily intake (ADI) of pesticides, as advised by the Food and Agricultural Organisation of the United Nations (FAO) and World Health Organisation (WHO)². Overall, results of the study suggest all EDIs were well below the acceptable daily intakes.

For olive oils from conventional cultivations:
- 10 per cent of samples had no residues of the pesticides
- 20 of the 35 pesticides were detected across the remainder of the samples
- the three most commonly detected pesticides were dimethoate, fenthion and endosulfan
- on average, three different pesticide residues were found in the olive oils
- commercially and individually processed extra virgin olive oils contained the highest amounts of the targeted pesticides, possibly as a result of farmers protecting their crops against the olive fruit fly, a pest that has the greatest impact on the quality of the olive oil

For the organic olive oils, six of the ten samples contained no detectable pesticide residues. One of the other samples might have been contaminated from neighbouring conventional farms. But the remaining three samples contained low levels of endosulfan.

The researchers suggest olive oils should be tested for multiple pesticide residues to monitor the exposure of consumers to both registered and unregistered pesticides. Other sources of pesticide exposure in the diet should, however, also be considered when assessing overall risks from pesticides.


Contact: talbanis@cc.uoi.gr

Theme(s): Agriculture, Chemicals, Environment and Health