

Rapid advice 11-2016 of the Scientific Committee of the FASFC on the fixation of an action level for hydrogen cyanide in bitter and sweet apricot kernels

Background & Terms of reference

The bitter apricot kernels (*Prunus armeniaca*) have become popular among a small group of consumers who believe in the supposed prophylactic and therapeutic effects of bitter apricot kernels against cancer.

The amygdalin (cyanogenic glycoside) contained in apricot kernels, is primarily metabolized to cyanide when ingested. Cases of poisoning with cyanide after ingesting apricot kernels have been reported in the literature.

EFSA (2016) has an acute reference dose (acute reference dose - ARfD) of 20 µg equivalent hydrogen cyanide/kg body weight (bw) established. The exposure estimates made exceed the acute reference dose. The maximum quantities of apricot kernel, calculated by EFSA, which can be consumed without exceeding the acute reference dose is 0.06 g for infants and 0.37 g for adults.

The Scientific Committee has been requested to set an action level for hydrogen cyanide in bitter and sweet apricot kernels.

Methodology

This advice is based on expert opinion and data available in the scientific literature.

Results

The contents of hydrogen cyanide from the apricot kernels vary widely. EFSA reported concentrations ranging up to 3.800 mg/kg. There are no reliable consumption data for bitter and sweet apricot kernels. Therefore, adequate risk calculation is not possible. Based on the advice given to consumers through websites which claimed that apricot kernels promote health, consumption of at least 10 apricot kernels a day is expected with consumption up to 80 apricot kernels a day (40 g/day). Since no specific recommendations have been found for children on those websites, it is assumed that children might consume similar numbers apricot kernels.

On the basis of this consumption value of 80 apricot kernels per day (40 g/day), and assuming an average weight of an apricot of 0.5 g, it is possible to calculate the maximum concentration of hydrogen cyanide which may contain apricot kernels so that the exposure would not exceed the ARfD (20 µg/kg bw). The maximum level of hydrogen cyanide which may not be exceeded in apricot kernels and derivatives products is estimated to be 7.5 mg/kg for children and 35 mg/kg for adults.

Conclusions

In absence of actual consumption data, the Scientific Committee has estimated on basis of an - estimated - exceptional consumption of 80 apricot kernels per day by children (worst case scenario), a provisional action level of 7.5 mg/kg of hydrogen cyanide in bitter and sweet apricot kernels, as well as in derivatives products. This action level is based on the acute risk of hydrogen cyanide.

The Scientific Committee recommends to avoid consumption of apricot kernels and derived products.

Furthermore, it believes that additional data on the concentration levels of cyanogenic glycosides in apricot kernels and derived products as on their consumption are needed for risk assessment.

The full text is available on this website in dutch and in french.