Occurrence data and dietary exposure assessment for the European population

In this guide

13. References - EFSA draft scientific opinion on risks for human health of plant lectins in food

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

27. Due to the lack of toxicological information on most lectins, the dietary exposure assessment focused on phytohaemagglutinin (PHA) only. The occurrence data used in EFSA's exposure assessment came thereby from a study by Bognolia et al. (2008) which identified PHA within kidney beans at a level of 24.9 mg/g. The authors believed this concentration to be representative of all beans within the *Phaseolus sp.* including runner beans and French beans. EFSA considered this value appropriate/representative as Bognolia et al. used enzyme-linked immunosorbent assay (ELISA) to only quantified active lectins, for an acute dietary exposure calculation the highest end of the concentration data was required.

28. The EFSA Comprehensive European Food Consumption Database was used to calculate the highest acute dietary exposure to PHA, which in this assessment was for 'other children' and 'toddlers'. The exposure was estimated for separate food items, i.e. lima beans, borlotti or other common beans, beans and vegetables meal, within different population categories and consumption days.

29. EFSA considered different exposure scenarios in their assessment, focussing on the processing of lectins. Exposure scenario one considered beans within the *Phaseolus sp* that had been adequately processed, mainly through soaking and boiling. EFSA assumed that if correct processing procedures had been followed, the lectins would no longer be active and therefore no risk would arise from consumption. Therefore, no dietary exposure was estimated for scenario one. The second scenario considered that adequate processing practices had not been applied, and therefore the lectins remained active. Within scenario 2, EFSA chose a value of 50% to represent the lectins that would remain active. EFSA therefore estimated that the highest mean exposure would be 23.5 mg/kg bw day and 35.0 mg/kg bw per day for 'Borlotti or other common beans (dry)', and 'Lima beans (dry)', respectively.