Summary of 2025 EFSA draft evaluation

In this guide

In this guide

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

Toxicokinetics

8. Limited toxicokinetic studies were available in rodents.

9. Over a period of 10 days, Pusztai et al. (1990) exposed rats to 470 mg/kg bw/day of plant lectins (PHA, SBA, SNA I, SNA II (from elderberry), VFL (from broad bean)) demonstrating that around 90% of PHA travelled through the digestive tract and remained functionally active. With the exception of VFL, all lectins caused decreased body weight gain.

10. A study by Nakata and Kimura (1985), exposed Wistar rats to Con A (2%) for 24 hours before resuming a normal diet. After 72 hours approximately 63% of the Con A was detected in faeces. A second study by the same authors exposed rats to 50 mg Con A in 5 g feed before fasting for 24 hours and then returning to a normal diet. Faeces were collected at 24-hour intervals until 120 hours and results indicated that >89% of Con A passed unchanged through the digestive tract.

11. Kilpatrick et al. (1985) studied the absorption of tomato lectins by feeding Lister rats fresh tomato (5% tomato lectin) over 10 days and active tomato lectin could be identified within the faeces. In a follow up study, rats were fed I^{125}-labelled tomato lectin and lectin was found to be the highest in the stomach and epithelium directly after consumption, with up to 60% of the tomato lectin being in the small intestine and epithelium after 1.5 hours, and 25% identified within the colon and epithelium after 3 hours. The authors concluded that most of the tomato lectin remained unchanged and passed through the gastrointestinal (GI) tract, this was further supported by the results showing that only 3% of the radioactive labelled tomato lectin was found within the body 3 hours after consumption, mainly within the serum and liver.

12. EFSA concluded that based on the studies available absorption of lectins was low and lectins remained structurally intact when passing through the GI tract. Within rodents there was no evidence of degradation of lectins as the lectins were found to retain biological activity and be functionally active after passing through the digestive tract.

13. Whilst there were limited studies available on the toxicokinetics of active lectins in humans, EFSA concluded that the evidence available on peanut

agglutin (PNA) and wheat germ agglutin (WGA) suggested that absorption occurred in the upper GI tract. Studies also highlighted immunoglobulin G (IgG) and immunoglobulin M (IgM) responses which correlated with the consumption of lectins or proteins, suggesting that consumption of lectins may lead to increased translocation of dietary antigens.