



COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

COT statement on domoic acid in King Scallops (*Pecten Maximus*): lay summary

1. The COT considered the evidence that was available to support shucking (removal of inedible parts) as a scientifically robust and effective method of managing the health risks associated with Amnesic Shellfish Poison (ASP) toxins in scallops. The main toxin of concern is domoic acid (DA). The Committee was asked whether, from data on the distribution of DA in different tissues from King Scallops, it was possible to identify a level of the compound in batches of whole animals that would pose minimal risk to consumers following effective shucking. It was anticipated that such a level would provide the basis for future risk management decisions.
2. DA is produced by species of phytoplankton and can be accumulated by filter-feeding shellfish such as scallops. Symptoms in humans following high exposures to DA include vomiting, diarrhoea, confusion, memory loss and in extreme cases, brain damage. The European Food Safety Authority (EFSA) has derived an Acute Reference Dose (ARfD) of 30 µg /kg b.w. for DA. This is an estimate of the amount of the substance that could be ingested in a period of 24 h or less without appreciable health risks to the consumer. The COT concluded that the EFSA ARfD should be used in its assessment of DA.
3. The toxicity of DA is determined by recent exposure, rather than cumulative exposure over a prolonged period. Therefore, for a given concentration of DA in scallops, the greatest potential for risk will be in someone who consumes an unusually large quantity in a single day. The COT agreed that, as reported by EFSA, 400 g represented a reasonable estimate of the largest portion of scallops that was likely to be consumed over 24 hours.
4. Levels of DA in whole scallops vary widely over time and by geographical area, but concentrations in the edible parts (adductor muscle and gonad) are considerably lower than in the whole animal.
5. The COT analysed data on DA concentrations in scallops that had been harvested from various locations in the West Coast of Scotland, to determine the

levels that might occur in 400g portions of the edible parts. Statistical simulations indicated that fewer than 1% of such portions would contain DA concentrations sufficient to cause exceedance of the ARfD.

6. On average, the concentration of DA in edible parts of the scallop is expected to be roughly proportional to the level in the whole animal. The COT used this relationship to estimate the average DA concentrations in whole animals that would lead to exceedance of the EFSA ARfD for no more than 5%, 2.5%, 1%, 0.5% or 0.1% of 400g portions of edible tissues, assuming that shucking was performed according to best practice. The analysis indicated that, at the 1% level, consumption of a 400g portion of adductor muscle plus gonad could lead to exceedance of the ARfD at concentrations of DA in whole scallops that were above 162 mg/kg. For a similarly sized portion of adductor muscle only, exceedance of the ARfD could occur at the 1% level at concentrations in whole scallops that were above 173 mg/kg.

7. The efficiency of shucking can vary, and comparison of results for different operators indicated that even among trained and approved processors, this could lead to concentrations of DA in edible tissue (comprising adductor muscle plus gonad) that are at least 4-fold higher than can be achieved by best practice.

8. The calculations described provide a basis on which to refine the management of risks from ASP toxins. However, decisions should take into account uncertainties in the analysis, the most important of which relate to the limited number of scallops for which data were available, and the fact that data on variability in the efficiency of shucking were available for only five processors.

The full COT statement can be found at:

<http://www.food.gov.uk/sites/default/files/cot-statement-da-scallops.pdf>

Lay Summary to COT Statement 2014/05

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