EVM Statement — Sulphur

The programme of nutrients to be considered by the EVM was drawn up to include vitamins and minerals considered to be essential and those where the evidence for essentiality was less certain but which were available as food supplements (e.g. nickel). Sulphur was included as an essential element. However, elemental sulphur is not essential per se, since the body's requirements are met via the metabolism of sulphur-containing amino acids such as cysteine and methionine obtained from dietary protein. Inorganic or elemental sulphur compounds are not available in dietary supplements.

Sulphur is present in a wide variety of compounds that occur in food. For example, as well as being naturally present in foods, sulphites, and to a lesser extent sulphates, are widely used as food additives and their safety in this context has been assessed by a variety of regulatory bodies. As noted previously, sulphur is also present in amino acids and, in other food components such as glucosolinolates. The consideration of such compounds, particularly food additives, is not within the remit of the EVM.

Elemental sulphur is used as a folk remedy. However, relatively few data in either humans or animals are available. Absorption of elemental sulphur is poor in man and other monogastrics. Absorbed sulphur is likely to be rapidly oxidised to sulphate; unabsorbed sulphur is likely to be reduced to hydrogen sulphide by gut flora.

There are a few case reports suggesting that intakes of several hundred grams of elemental sulphur are associated with symptoms such as chest pain, lethargy, confusion and, in particular, metabolic acidosis. However, in all these cases, underlying medical conditions such as renal disease and constipation may have contributed to the observed symptoms.

Few data are available on dietary sulphur intake. It has been estimated that the human diet contains approximately 1% sulphur. Assuming that adults consume 1 kg food/day, this would represent a sulphur intake of 10 g or, 143 mg/kg bw for a 70 kg adult. However, this intake would largely consist of sulphur containing amino acids and other food components.

In view of the scarcity of relevant data and since the majority of sulphur-containing compounds are not within its remit, sulphur has not been fully reviewed or assessed by the Group.