Perchlorate salts are well known impurities of Chilean nitrate which is often used as a natural source for the production of fertilizers. A number of studies have shown that food crops absorb and accumulate perchlorate from contaminated water and soil.

Therefore they may contribute to potential human exposure to perchlorate, if they were cultivated with Chilean nitrate-containing fertilizers. There is concern that this represents a health risk for consumers because perchlorate acts as goitrogene by blocking iodide uptake and causing thyroid dysfunction.

In July 2013, a statement with perchlorate levels in food for intra-Union trade was agreed by the European Commission’s SCFCAH [1] as a first response to the steady grow of perchlorate findings in fruit and vegetable samples in the EU since 2012. In 2013, a total amount of 317 official samples from the market were analysed for perchlorate in our lab (see Table). All the 166 fruit samples and 151 vegetable samples were collected in the Federal State of Lower Saxony. Perchlorate residues were determined by applying the QuPPe multisite method for the analysis of polar pesticides and LC-MS/MS [2].

Our results showed a total of 253 samples of the 317 samples containing no perchlorate (LOQ: 0.005 mg/kg). In 20 samples traces of perchlorate (< 0.01 mg/kg) were detected and 44 samples contained quantifiable amounts (LOQ: 0.01 mg/kg) (Figure 1). Positive perchlorate findings were widespread (Figure 2). The highest perchlorate levels were measured in two samples of head lettuce containing 4.56 mg/kg or 3.02 mg/kg (Figure 3).

In both cases the risk assessment using EFSA’s model for pesticides (PRIMo) [3] showed an extremely high exceedance of PMTDI up to 501 % for adults or 1227 % for children. It was therefore considered that these two samples were unsafe from the public health viewpoint. The lettuce should not be placed on the market.

In July 2013, a statement as regards the presence of perchlorate in food agreed by the Standing Committee of the Food chain and Animal Health on 16 July 2013 (valid from 17th July 2013) was agreed by the European Commission’s SCFCAH [1] as a first response to the steady grow of perchlorate findings in fruit and vegetable samples in the EU since 2012.

The lettuce should not be placed on the market for children. It was therefore considered that these two samples were unsafe from the public health viewpoint. The lettuce should not be placed on the market.