of n-butanol the retention of analytes is reduced and their peaks are compressed, because they elute in front of the n-butanol peak, as was confirmed in LC-TSP-MS experiments not discussed in the present paper. These results suggest displacement effects as discussed by Guiochon *et al.* [27]. However, full elucidation of the processes involved is outside the scope of the present study and will be the subject of further studies.

Large injection volumes of 1-10 µl can now be handled easily. The approach has been used in micro-LC with flame photometric detection and allows the simultaneous determination of organophosphorus nerve agents and their polar degradation products down to the 1-20 ppb level in water samples. With the examples studied so far, the substantially improved sensitivity compared with that of the earlier on-line trace-enrichment procedure [10] easily outweighs the loss of resolution which is sometimes observed.

The peak-compression micro-LC-FPD procedure is considerably more user-friendly than the conventional P-CH_3 method [17], with which it takes several days to complete an analysis. Besides, the absence of hydrolytic sample treatment and the possibility to detect simultaneously both the parent nerve agent and its degradation product(s) substantially increases the information content of the procedure. The trace-level applications shown indicate that the present methods are sufficiently sensitive to be used to verify the alleged use or prohibited production of chemical warfare agents.

A brief consideration may help to illustrate the potential of our method to indicate a violation of the prohibition to use nerve agents. The background concentration of industrially polluted water such as that from the river Rhine was found to be 1 ppb of MPA originating from P-CH_3-containing compounds; this equals the detection limit of the present method. On the basis of an insecticide plant case study, Verweij *et al.* [19] calculated that notwithstanding stringent limitations placed on the waste discharge of the production facility, it may carry off 120 g of sarin - or, more probably an equivalent amount of its degradation products - per day. This will result in a MPA and/or IMPA concentration of about 200 ppb which far exceeds the detection limit of the present procedure. In other words, detection of MPA and/or a characteristic nerve agent degradation product directly in the waste stream or close to the waste outlet, giving a strong indication of an illegal use appears to be possible.