However, the half-life of hydrolysis of the nerve agents does not only depend on pH, but also on the presence of ionic compounds such as chromate and molybdate, or metal chelates [16]. This implies that for, *e.g.*, sarin the half-life may vary from 200 hours to a few minutes. Because of the rather unpredictable hydrolytic processes, simultaneous determination of a nerve agent and its degradation products will be highly useful during verification procedures. In an earlier study, micro-LC-FPD was used to determine such products. The parent compounds were, however, not retained on the precolumn used and were therefore not detected [10].

The above problem can now be solved, *viz.* by using large-volume injections under peak-compression conditions. As an example, **Figure 5A** shows a LC-FPD chromatogram obtained upon a 10-µl injection of a river Rhine water sample 90 min after the sample had been spiked with 10 ppm of sarin. The sample contained 5% n-butanol to effect peak compression on the PRP-1 analytical column. The large peak at 7.1 min which is due to IMPA, and the small sarin peak at 8.9 min which represents a mere 25 ppb of that compound illustrate the practicality of the approach and demonstrate that sarin was nearly completely hydrolysed within about one hour.

Figure 5B shows the hydrolysis product PMPA which was added to river Rhine water at the 10 ppm level. Under the peak-compression conditions used the detection limits for IMPA and PMPA are 10 and 20 ppb, respectively. When using the acid-type peak-compression conditions (2 mg/ml of hydrochloric acid in sample) and a PRP-X100 column (*cf.* Figure 2B), the detection limit for the final acid degradation product MPA was 1 ppb. This is the same value as reported for the so-called P-CH_3 method [17-19]. The latter method, however, requires hydrolytic sample treatment to convert the nerve agent and/or its degradation products into MPA. Apart from the loss of information, the total analysis time is 3-5 days, which is hardly acceptable for on-site inspection.

Determination of phosphorous acid in mustard. Peak-compression micro-LC has also been used for the detection of phosphorous acid in samples of the blistering warfare agent mustard. Mustard, bis(2-chloroethyl)sulphide, may contain small amounts of phosphorous acid if the production process is based