The increasing use of pharmaceutical compounds in human and animals is becoming a new environmental problem and, because of that, the interest in having information about their presence in the environment and their possible adverse effects on human and on ecological systems is considerably increasing.

Solid-phase extraction (SPE) is widely used as sample preparation technique for the determination of contaminants from environmental water samples. The wide spread of pharmaceutical chemical structures makes sample preparation complex, especially when pharmaceuticals of different groups are in the mixture. Depending on the choice of sorbent, a wide range in polarity and chemical class may be covered.

### HPLC CONDITIONS

**Column:** LiChrosphere 100CN column, 125x4 mm, 5μm (Merck)

**Gradient elution:** 0.01 M H3C2O4 – ACN 80:20 (Water bath B-480, ROCH, Switzerland) at 40°C in dynamics

**Flow rate:** 1.0 mL/min – 0.8 mL/min

**Injection volume:** 20 μL

### CONCLUSION

Best retention of selected polar pharmaceuticals was achieved with the 500-mg Strata-X cartridge, and therefore, it was used for the SPE-HPLC-DAD method development. The developed method is accurate and reproducible, achieving high pharmaceutical recoveries (92.3-102.3%) include sulfaguanidine (76.1%). Selected NF and RO membranes investigated proved to be very efficient (~99%) in eliminating the investigated pharmaceuticals from production wastewater samples, especially NF90 and XLE membrane type.