



The 16th International Electronic Conference on Synthetic Organic Chemistry

Section D. Polymer and Supramolecular Chemistry

1-30 November 2012

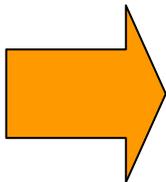
Development of molecularly imprinted polymers for the analysis of amphenicols in milk

Rocío Barreiro, Mónica Díaz-Bao, Patricia Regal, José M. Miranda and Alberto Cepeda

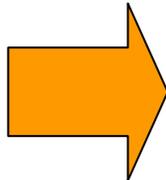
Department of Analytical Chemistry, University of Santiago de Compostela, 27002 Lugo (Spain)

sciforum

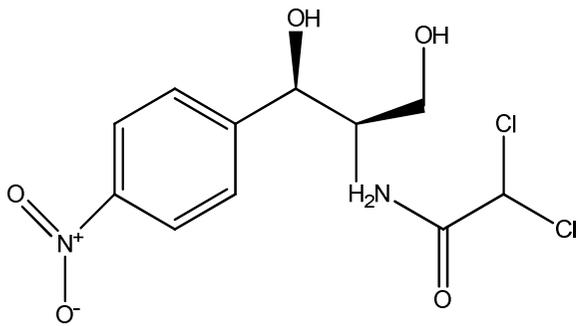
Animal treatment



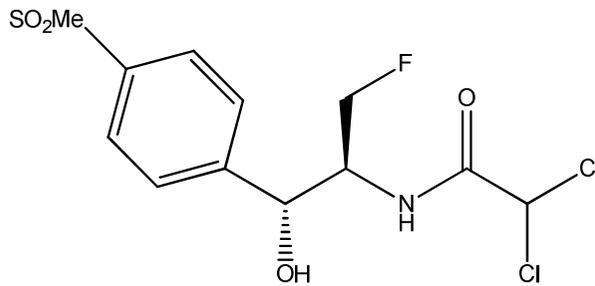
Residues in food



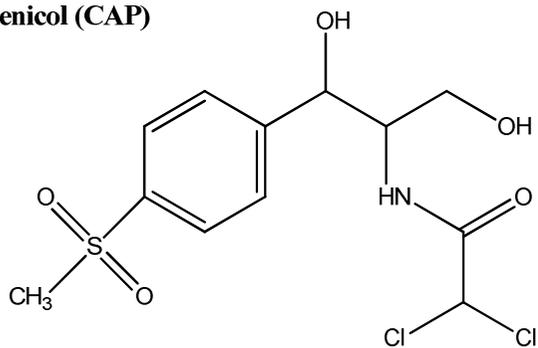
Human health consequences



Chloramphenicol (CAP)



Florfenicol (FLP)



Thiamphenicol (TAP)



Legislation

- Council Regulation (EEC) No 2377/90 of 26 June 1990
- Commission Regulation (EU) No 37/2010 of 22 December 2009
- Commission Decision of 13 March 2003 amending Decision 2002/657/EC (MRPL)

Experimental

1. Polymerization mixture

- Template
- Monomer functional
- Cross-linker
- Initiator
- Porogen

2. Precipitation/Polimerization



Incubator S160D &
Roller mixer SRT1
(Stuart Scientific, UK)
24h-60°

3. Filtration and washing



4. Template removal



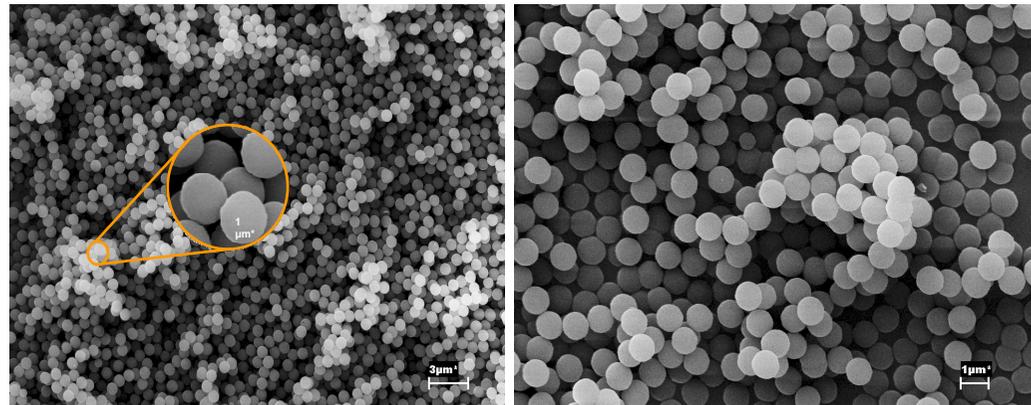
Soxhlet extraction
MeOH/AcOH
1:1 → 18h

5. Washing

MeOH/ACN
TOL/DCM

Experimental

6. Dry, weight and characterization of MIP and NIP (SEM)

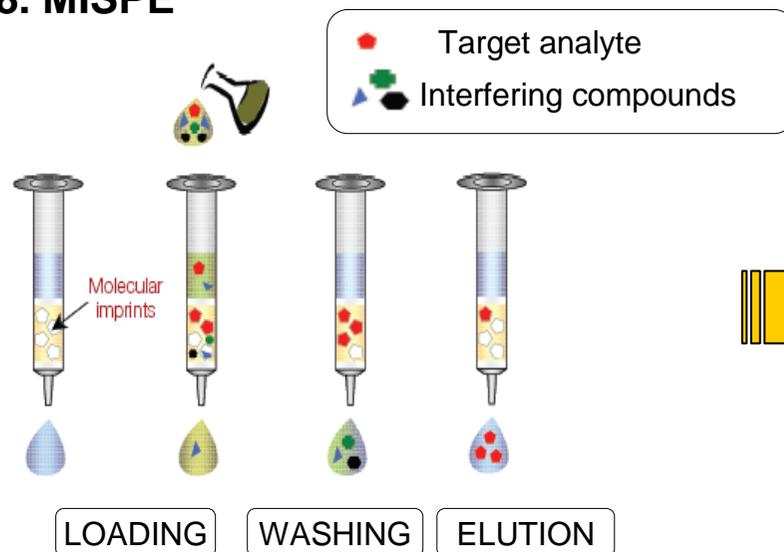


7. Cartridges

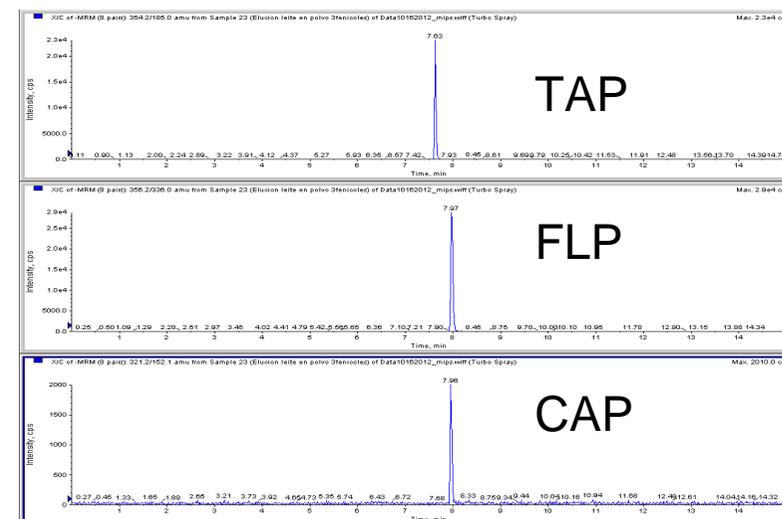


0.05g of polymer (MIP, NIP)

8. MISPE

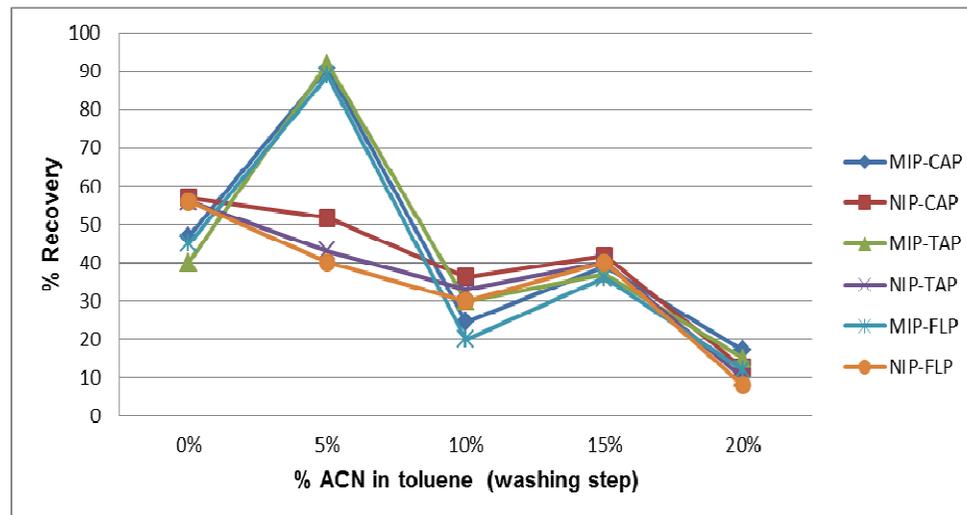


9. Quantification



Results

Recoveries obtained for CAP, TAP and FLP for MIP-DVB and its corresponding NIP as a function of a percentage of acetonitrile present in the washing toluene.



Summary of the obtained results for real spiked samples (at the level of interest) as a function of the loading solvent

SAMPLE	ANALYTE	Level of interest ($\mu\text{g Kg}^{-1}$)	
		MRL	MRPL
Milk and baby formulas	CAP	-	0.3
	TAP	50	-
	FLP	50	-

SAMPLE	ANALYTE	Recovery (%)	
		Toluene	Ethyl acetate
MILK	CAP	80	10
	TAP	80	6
	FLP	100	11
BABY FORMULA	CAP	90	80
	TAP	100	100
	FLP	85	80

CAP: chloramphenicol; TAP: tiamphenicol; FLP: florfenicol