

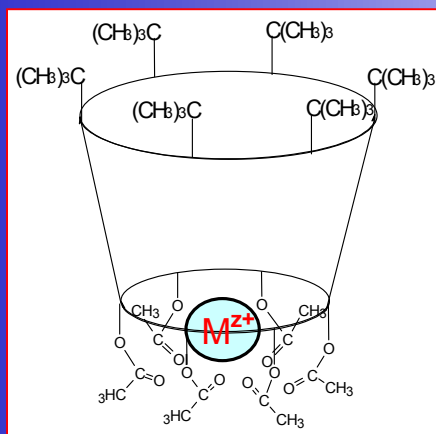
COMPUTER GUIDED SYSTEM FOR MONITORING OF SOME CATIONS FROM FLUIDS OF BIOTECHNOLOGIC AND MEDICAL INTEREST SPIC-BIOCAT

BIOTECH project 04-5-PDT 4760/2005

Project coordinator: Babes Bolyai University, Cluj-Napoca; Project director: prof. Ionel Catalin Popescu

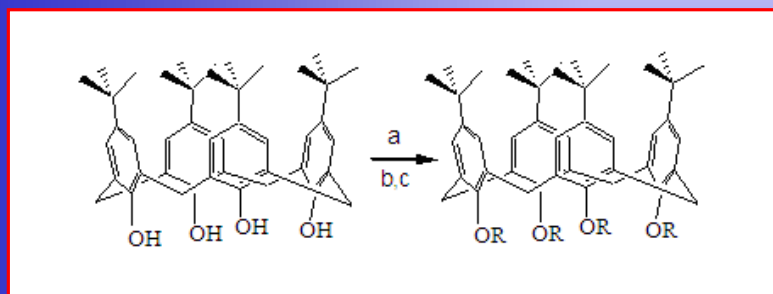
Sodium- sensitive ionophore based on calixarenes

Partener: Institute for Research in Chemistry Raluca Ripan Project responsabil: Elisabeth-Jeanne Popovici

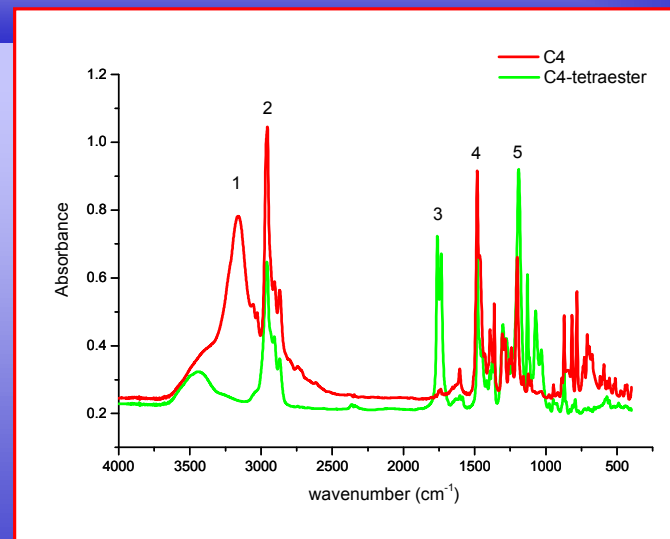


RESULTS

- Procedure for the synthesis of some **calixarene derivatives** to be used as ionophores for *electro-chemical sensors* for the determination of sodium in biological fluids;
- Product: Na-sensitive Ionophore (Code **I-X-ICRR**)
- Papers

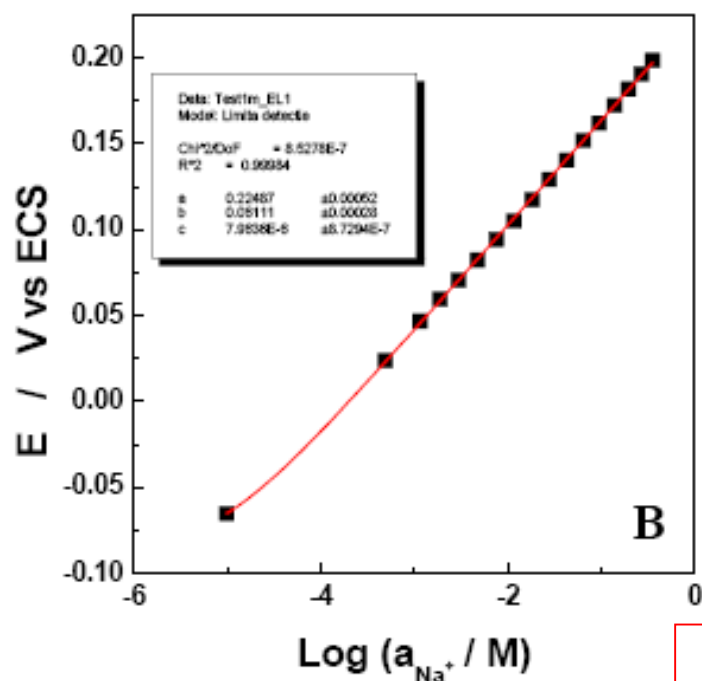


Synthesis of calixarene derivative, where a = $\text{BrCH}_2\text{COOC}_2\text{H}_5$;
b = THF-DMF; c = NaH; R = $\text{CH}_2\text{COOC}_2\text{H}_5$



FTIR spectrum of calixarene derivative (red) as compared with the parent calixarene (green)

Manufacture and testing of Na-selective membrane based on calixarene



Electrode calibration curve
(UBB measurements)

Membrane composition:

- Ionophore - I-X-ICCRR
- Additive: KTmCIPB:0.3%
- Plastifier (2-nitrophenyloctylether): 66%
- PVC: 33%

Sensitivity (mV/ ΔpNa)				
Ionofor	1	2	3	Val. Med.
Fluka	60.1±0.4	61.4 ± 0.2	60.5±0.3	60.33±0.3
ICCRR	61.1±0.3	63±0.5	62.4±0.1	62.1±0.2
Detection limit (M)				
Fluka	3.0E-5	4.0E-5	5.0E-5	4.0E-5
ICCRR	7.9E-6	8.0E-6	8.1E-6	8.0E-6