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From discrete to supported antibacterial calixarenes: Toward bacteriophilic materials

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We have conceived calixarene-based highly organized polycations thought to interact deleteriously with bacterial surface anions. The expected antibacterial behavior against various reference or resistant Gram negative or Gram positive bacteria, and on *M. tuberculosis* has been demonstrated *in vitro*. Various investigations involving AFM, Langmuir film studies and modelisation gave preliminary informations on their possible antibacterial mechanism, apparently related, as initially thought, to a strong interaction with bacterial membrane. Taking that into account, we proposed to transpose these properties at the surface of solid support by a covalent grafting, hoping at least for a bacteria sequestering behavior of the new materials, *in fine* a possible antibacterial one. We will present the synthetic strategy developed for passing from discrete to supported antibacterial calixarene, and the bacteria sequestration results we have obtained by capillary electrophoresis in this approach.

Biography

Jean-Bernard Regnouf-de-Vains has completed his PhD from Strasbourg University, supervised by Professor J. -M. LEHN, and Postdoctoral studies from Montpellier University. After a 2-years period in pharmaceutical industry as medicinal chemistry team leader (Montpellier), he joined in 1993 the University of Lyon as Assistant Professor, then moved to the University of Lorraine in 1998 as Professor of therapeutical chemistry at the Faculty of Pharmacy, and researcher in SRSMC laboratory, where he led two research teams, GEVSM and MoBAT (actual). He has published more than 75 papers, most dedicated to calixarenes and some of their applications in biology and metal complexation.

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