

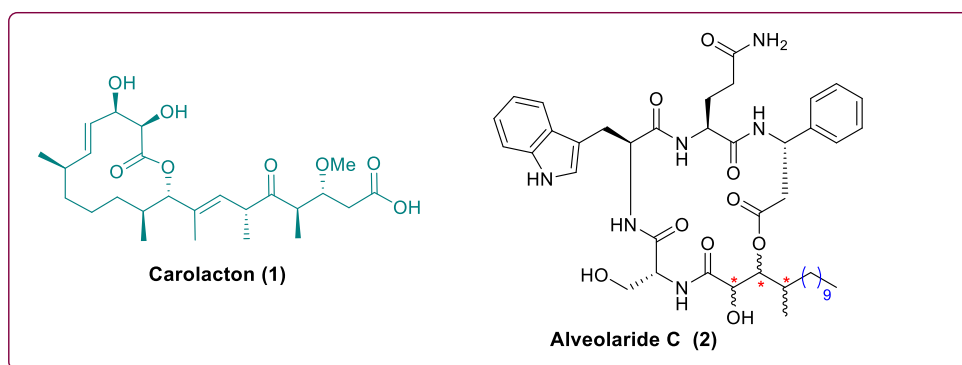
Asymmetric Total Synthesis of Carolacton and Alveolaride C

Rajib Kumar Goswami*
School of Chemical Sciences
Indian Association for the Cultivation of Science, Kolkata
([Email: ocrkg@iacs.res.in](mailto:ocrkg@iacs.res.in))

Abstract:

Macrocyclic natural products have attracted considerable interest to the scientific community due to their wide structural variations and broad range of biological activities. Carolacton (**1**) and alveolaride C (**2**) (Figure) are the bioactive secondary metabolites. Carolacton is a marine macrocyclic natural product which combats against *Streptococcus mutans* and *Streptococcus pneumonia*, the major bacterial pathogens responsible for human dental caries and pneumococcal infections, respectively, whereas alveolaride C (**2**) is an antipathogenic marine natural product. The structure of alveolaride C was deduced partially by the isolation group. Attractive bioactivities of these secondary metabolites together with their natural scarcity as well as their structural uniqueness prompted us to develop synthetic routes to render them readily available which eventually would validate their structures. In this presentation, the state of art associated with the asymmetric total synthesis of carolacton (**1**)¹ and alveolaride C (**2**)² will be discussed.

Figure: Chemical Structures of Carolacton (**1**) and Alveolaride C (**2**).



References:

- (1). Kuilya, T. K.; Goswami, R. K. *Org. Lett.*, **2017**, *19*, 2366–2369.
- (2). Saha, S.; Paul, D.; Goswami, R. K. *Chem. Sci.*, **2020**, *11*, 11259–11265

Bio-Sketch of Speaker

Rajib Kumar Goswami

Professor

School of Chemical Sciences
Indian Association for the Cultivation of Science

Contact Number: 8017339115

e-Mail: ocrkg@iacs.res.in



Homepage: <http://iacs.res.in/faculty-profile.html?id=104>

Dr. Goswami obtained his B.Sc in 1999 (Krishnath College, Berhampore) and M.Sc in 2001 (Raja Bazar Science College) under The University of Calcutta, West Bengal. He completed his Ph.D on natural product chemistry (synthesis) in 2007 at Indian Institute of Chemical Technology, Hyderabad, under the supervision of Prof. Tushar Kanti Chakraborty (Degree was awarded by University of Kalyani in 2008). Dr. Goswami was then moved to The Scripps Research Institute, California, USA for his postdoctoral work (2007-2011) under the tutelage of Prof. Subhash C Sinha where he worked on chemical synthesis of drug/drug like molecules and their delivery using monoclonal antibody. After completion of postdoctoral study, Dr. Goswami joined as Assistant Professor at the Department of Organic Chemistry, Indian Association for the Cultivation of Science (IACS) on 2011. He was promoted to Associated Professor on 2016 at the School of Chemical Sciences, IACS and subsequently to Professor at the same School on 2020.

Dr. Goswami is interested in the area of enantioselective total synthesis of novel natural products of therapeutic significance. His laboratory successfully solved the structural riddles of natural products like mycalol, baulamycin A, debilison A, penicitide A, alveolaride C and amphirionin-2 and developed synthetic routes of more than 30 marine and terrestrial natural products till the date. Moreover, Dr. Goswami's laboratory is actively involved in synthesis of new simplified variants of bioactive natural products to find their biomedical applications.