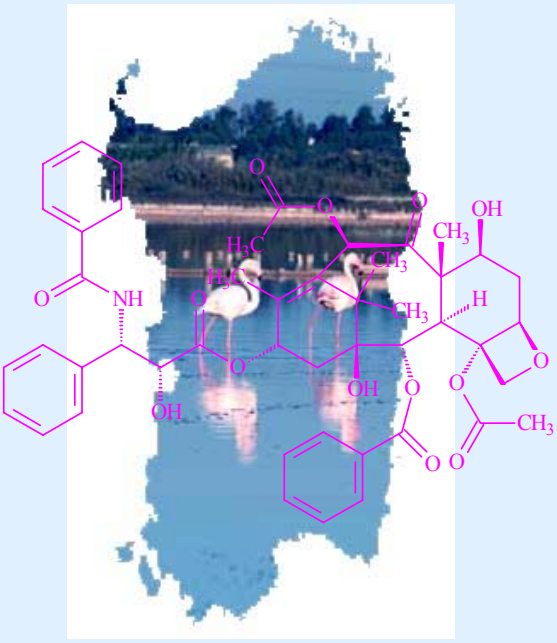
SardiniaChem 2006

GIORNATA DI STUDIO DEDICATA ALLA CHIMICA ORGANICA DELLE MOLECOLE BIOLOGICAMENTE ATTIVE

5 Giugno 2006, Complesso Universitario di Monserrato, Cagliari



COMITATO ORGANIZZATORE:

Salvatore Cabiddu - Università di Cagliari, Giovanna Delogu - CNR Sassari,

Pier Paolo Piras - Università di Cagliari, Giampaolo Giacomelli - Università di Sassari

HANNO CONTRIBUITO ALLA REALIZZAZIONE DEL CONVEGNO:

UNIVERSITÀ DI CAGLIARI; UNIVERSITÀ DI SASSARI-Dipartimento di Chimica; CNR-Istituto di Chimica Biomolecolare, Sezione di Sassari; SIGMA-ALDRICH Srl; EXACTA+OPTECH Sardegna S.r.l., CARLO ERBA REAGENTI; VWR INTERNATIONAL s.r.l.

REMOVAL OF ACETALDEHYDE FROM SALIVA BY MUCOADHESIVE FORMULATIONS CONTAINING CYSTEINE AND CHLORHEXIDINE DIACETATE: A POSSIBLE APPROACH TO THE PREVENTION OF ORAL CAVITY ALCOHOL-RELATED CANCER

Daniela Satta, Claudia Juliano, Massimo Cossu, Massimo T. Rota*, Paola Poggi*, Paolo Giunchedi

Dipartimento of Scienze del Farmaco, University of Sassari, Italy, and *Dipartimento di Medicina Sperimentale – Sezione di Anatomia Umana Normale, University of Pavia, Italy

julianoc@uniss.it

High alcohol intake is an independent risk factor for upper gastrointestinal (GI) tract cancers. In particular, there is increasing evidence that acetaldehyde, the first metabolite of ethanol, might be responsible for ethanol-associated carcinogenesis; it may be produced by mucosal alcohol dehydrogenases present in the upper digestive tract and especially by alcohol oxidation by oral bacterial microflora. Cysteine, a nonessential amino acid, has been shown to be able to react covalently with acetaldehyde to form 2-methylthiazolidine-4-carboxylic acid, thereby reducing its concentration. On the other hand, chlorhexidine, a well known antimicrobial agent, is widely used in antiseptic mouthwashes to reduce oral bacteria and it is therefore able to prevent acetaldehyde production. The aim of our work has been to develop buccoadhesive formulations (tablets) containing both L-cysteine and chlorhexidine diacetate and to verify their ability to reduce oral acetaldehyde produced after alcoholic drinks consumption. In an *in-vitro* system, the formulations prepared were able to release gradually their active principles and to neutralize acetaldehyde concentrations comparable to those ones present in saliva of heavy drinkers. Similarly, the *in-vivo* salivary levels of acetaldehyde produced by ethanol intake were significantly decreased by these tablets. It can be concluded that the buccal tablets here described represent an useful approach to the prevention of upper GI tract cancers ethanol-induced.