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**ELECTROSPRAY IONIZATION FOURIER TRANSFORM ION CYCLOTRON  
RESONANCE MASS SPECTROMETRY AS AN AFFINITY SCREEN TO IDENTIFY  
BINDING LIGANDS FROM NATURAL PRODUCT EXTRACTS**

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There is a constant search for a successful analytical methodology to provide screening of crude natural product extracts against biological targets for identification of active ligands. One of the approaches is to use the ability of electrospray ionization (ESI) to generate ions of intact noncovalent complexes, and of Fourier transform ion cyclotron resonance (FTICR) mass spectrometry to perform  $m/z$ -selective ion accumulation, isolation, and multistage ion dissociation to identify the structure of the bound ligand.

This work demonstrates a screening methodology based on ESI-FTICR mass spectrometry for rapidly detecting the noncovalent interaction between bovine carbonic anhydrase II (EC4.2.1.1) and components derived from natural product extracts. The extracts of seven marine species were mixed with bovine carbonic anhydrase II, incubated at room temperature for one hour, and then analyzed by ESI-FTICR. The incubated samples were also spiked with ethoxzolamide, a specific inhibitor of BCaII, and analyzed. The fact that there is no interference from the extracts to the formation of the BCaII-ethoxzolamide complex proves ESI-FTICR mass spectrometry a simple, suitable method for screening natural product extracts.