

## **An electrospray mass spectrometry investigation of the nature of gramicidin S - surfactin interaction**

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It was found that surfactin antagonises the antimicrobial action of gramicidin S. The possible mechanism of antagonism was investigated through electrospray mass spectrometry. We observed the formation of surfactin-gramicidin S complexes in 1:1 and 2:1 ratios with complex formation favoured by an increase in the organic component of the carrier solvent. Dissociation *via* cone voltage and collisionally induced dissociation experiments showed the relative stability of the peptides and peptide complexes. Competition studies indicated that neither Na<sup>+</sup> nor Ca<sup>2+</sup> affect the stability of preformed complexes, and that metal ion association does not occur after complex formation. Titration of ion-associated surfactin (Na<sup>+</sup> or Ca<sup>2+</sup> adducts) showed that gramicidin S associates with both surfactin and the ion-complexed surfactin.