

电喷雾离子化飞行时间质谱研究鸡蛋清溶菌酶与 $\beta$ -环糊精的新型复合物

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摘要

运用电喷雾离子化飞行时间质谱分析鸡蛋清溶菌酶与 $\beta$ -环糊精的复合物。通过减少 $\beta$ -环糊精的配制浓度至原来的1/5,发现形成1:2和1:3复合比的溶菌酶- $\beta$ -环糊精复合物的离子丰度减弱,但化学计量比为1:1的复合物变化不大,证明该新型复合物为非特异性非共价复合物。此外还对质谱参数、分析条件对复合物离子化的影响作了详尽的考察,得出在nozzle电压为200V时复合物信号最强,在不影响生物分子高级结构的前提下添加少量的有机溶剂如甲醇、乙腈等能较明显地改善质谱信号。

关键词 [飞行时间质谱法](#) [电喷雾离子化](#) [溶菌酶](#) [环糊精](#) [复合物](#)

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## Study on the complexes of egg-white lysozyme and $\beta$ -cyclodextrin by electrospray ionization time-of-flight mass spectrometry

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**Abstract** Electrospray ionization time-of-flight mass spectrometry is a good tool for the characterization of noncovalent complexes because of "soft" ionization and condition. Under our experimental conditions, the nonspecific noncovalent interactions of egg-white lysozyme with  $\beta$ -cyclodextrin have been observed by electrospray ionization/time-of-flight mass spectrometry. Some mass spectrometric feature, such as ion abundance enhancement by selecting appropriate nozzle potential, and stoichiometries, show that the noncovalent complexes between lysozyme and  $\beta$ -cyclodextrin have been formed at a ratio of 1:1, 1:2, 1:3 in higher concentration and almost left ratio 1:1 in lower concentration of  $\beta$ -cyclodextrin. These results imply that the complexes should be nonspecific complexes. In addition, we founded that the appropriate condition, such as addition of some organic solvent of suitable SCIEX chamber temperature, is conducive to the ionization of noncovalent complexes.

**Key words** [TIME-OFF FLIGHT MASS SPECTROMETRY](#) [LYSOZYME](#) [CYCLODEXTRIN](#) [COMPLEX](#)

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