

论文

甘露糖磷酸氨基酸缀合物的ESI-MS研究

孙麒<sup>1</sup>, 马强<sup>1</sup>, 何立<sup>1</sup>, 巨勇<sup>1,2</sup>, 赵玉芬<sup>1</sup>

1. 清华大学化学系生命有机磷化学及化学生物学教育部重点实验室, 北京 100084;
2. 兰州大学应用有机化学国家重点实验室, 兰州 730000

摘要:

一系列全乙酰保护甘露糖-1-磷酸氨基酸酯缀合物的 $\alpha$ 构型和 $\beta$ 构型异构体的ESI-MS<sup>n</sup>裂解规律研究表明,  $\beta$ 构型异构体会出现一系列特征的m/z 433, 391, 371的碎片离子, 且[M-CH<sub>2</sub>CHCH<sub>3</sub>+Na]<sup>+</sup>碎片丰度较大. [M-糖基+Na]<sup>+</sup>和[糖基+Na]<sup>+</sup>碎片相对丰度较小.  $\alpha$ 构型分子反之. 同时对全乙酰保护的[糖基+Na]<sup>+</sup> m/z 353碎片离子进行三级碎裂, 其主要特征是消除CH<sub>2</sub>CO和AcOH中性分子的碎片离子, 而且其它位羟基构型的差异对质谱中碎裂方式影响不大.

关键词: 甘露糖磷酸胺缀合物 电喷雾质谱 裂解规律

Studies on ESI-MS of Mannosyl-1-phosphoramidates

SUN Qi<sup>1</sup>, MA Qiang<sup>1</sup>, HE Li<sup>1</sup>, JU Yong<sup>1,2\*</sup>, ZHAO Yu-Fen<sup>1</sup>

1. The Key Laboratory of Bioorganic Phosphorus Chemistry, Ministry of Education, Department of Chemistry, Tsinghua University, Beijing 100084, China;
2. National Laboratory of Applied Organic Chemistry, Lanzhou University, Lanzhou 730000, China

Abstract:

Phosphoglycoproteins are a kind of compounds that have many important biological functions. In order to study the relationship between the structure and the biological functions of these compounds, some core structures(glycosyl-1-phosphoramides) of these compounds were synthesized. Electrospray ionization mass spectrometry(ESI-MS) was used to study the fragmentation characteristics of various types of acetyl protecting mannosyl-1-phosphoramidates. The results show that there are very different characteristics between  $\alpha$ - and  $\beta$ - anomeric isomers. The ESI-MS<sup>2</sup> spectra of the quasi-molecular ion [M+Na]<sup>+</sup> of  $\beta$ - anomeric isomers show characteristic fragment ions at m/z 433, 391 and 371; and the relative abundance of fragment ion [M-CH<sub>2</sub>CHCH<sub>3</sub>+Na]<sup>+</sup> peak is much higher than that of  $\alpha$  anomeric isomers. That this characteristic fragmentation should be due to the interaction of the phosphoramidate group at the anomeric carbon and the acetyl protecting groups of the hydroxyl groups, especially the acetyl protecting group at C2. Meanwhile, the ESI-MS<sup>3</sup> spectrum of fragment ion [sugar+Na]<sup>+</sup> m/z 353 of different isomers of acetyl protecting glycosyl-1-phosphoramidates shows the same fragmentation pattern including the loss of molecules of CH<sub>2</sub>=C=O and AcOH and is not effected by the other position configuration.

Keywords: Mannosyl-1-phosphoramidate ESI-MS Fragmentation pattern

收稿日期 1900-01-01 修回日期 1900-01-01 网络版发布日期

DOI:

基金项目:

通讯作者: 巨勇

扩展功能

本文信息

Supporting info

PDF(405KB)

[HTML全文](OKB)

参考文献[PDF]

参考文献

服务与反馈

把本文推荐给朋友

加入我的书架

加入引用管理器

引用本文

Email Alert

文章反馈

浏览反馈信息

本文关键词相关文章

▶ 甘露糖磷酸胺缀合物

▶ 电喷雾质谱

▶ 裂解规律

本文作者相关文章

▶ 孙麒

▶ 马强

▶ 何立

▶ 巨勇

▶ 赵玉芬

▶ 孙麒

▶ 马强

▶ 何立

▶ 巨勇

▶ 赵玉芬

PubMed

Article by

Article by

Article by

Article by

Article by

Article by

Article by

Article by

Article by

Article by

---

参考文献:

本刊中的类似文章

1. 刘悦, 刘志强, 李慧琳, 宋凤瑞, 刘淑莹. 传统中药甘遂根中二萜类化学成分的电喷雾质谱研究[J]. 高等学校化学学报, 2008,29(9): 1727-1735
2. 赵宇峰, 宋凤瑞, 国新华, 刘淑莹. 利用软电离质谱技术研究乌头碱在肠内细菌中的生物转化[J]. 高等学校化学学报, 2008,29(1): 55-59
3. 胡斌, 陈兰慧, 郁延富, 张燮, 李明, 梁华正, 陈焕文. 甲基羟基铈酰离子与水的复分解反应[J]. 高等学校化学学报, 2008,29(5): 912-915
4. 赵峡, 付海宁, 于广利, 王金霞, 李小军, 管华诗. 固相酸解法制备古糖酯寡糖及其电喷雾质谱分析[J]. 高等学校化学学报, 2008,29(7): 1344-1348

---

文章评论

序号	时间	反馈人	邮箱	标题	内容
					META http-equiv: Type content="t charset=unic Appreciation for star hee