

# Synthetic Studies on Multi Sorts of Biologically Active Compounds Using Nitrones Related to Amino Acids and Sugars

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# 2004 Fiscal Year Final Research Report Summary

## Synthetic Studies on Multi Sorts of Biologically Active Compounds Using Nitrones Related to Amino Acids and Sugars

Research Project

### Project/Area Number

15590003

### Research Category

Grant-in-Aid for Scientific Research (C)

### Allocation Type

Single-year Grants

### Section

一般

### Research Field

Chemical pharmacy

### Research Institution

Kanazawa University

### Principal Investigator

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### Project Period (FY)

2003 - 2004

### Keywords

nitron / amino acids / sugars / cycloaddition / nucleophilic addition / biologically active compounds / synthesis

### Research Abstract

(1)A method for the synthesis cyclic nitrones having multi-oxygen functionalities from hemiacetals such as sugars was explored. Thus, the nitrones were prepared by TBAT-mediated desilylative cyclization of  $\omega$ -mesyloxy-O-tert-butylidiphenylsilyloximes, readily prepared from sugar derivatives by a consecutive treatment with O-tert-butylidiphenylsilylhydroxylamine and with mesyl chloride. As an application of this method, concise syntheses of codonopsine, hyacinthacine A\_1, and hyacinthacine A\_2 were readily accomplished from the cyclic nitron, which was obtained from protected L-xylose.

(2)A cyclic nitron derived from (S)-phenylglycinol reacted with allyl alcohols in the presence of MgBr\_2OEt\_2 to give cycloadducts stereoselectively. The reaction was

applied to syntheses of monatin (a natural sweetener) and lycoperdic acid. In contrast to cycloaddition with allyl alcohols, reactions of the cyclic nitron with  $\alpha$ -substituted acrylates in the absence of  $MgBr_2 \cdot OEt_2$  gave cycloadducts having op ...▼ More

## Research Products (12 results)

	All	2005	2004	2003	Other
	All	Journal Article	Patent(Industrial Property Rights)		
[Journal Article] Trans-3'-Hydroxycotinine O- and N-Glucuronidations in Human Liver Microsomes				2005	▼
[Journal Article] Stereoselective Syntheses of 4-Hydroxy-4-substituted Glutamic Acids				2005	▼
[Journal Article] Trans-3'-Hydroxycotinine O-and N-Glucuronidations in Human Liver Microsomes				2005	▼
[Journal Article] Syntheses of (-)-Funebrine and (-)-Funebral, Using Sequential Transesterification and Intramolecular Cycloaddition of a Chiral Nitron, Using Chelation-Controlled Nitron-Cycloaddition.				2004	▼
[Journal Article] Synthesis of (3'R,5'S)-3'-Hydroxycotinine Using 1,3-Dipolar Cycloaddition of a Nitron				2004	▼
[Journal Article] Syntheses of (-)-Funebrine and (-)-Funebral, Using Sequential Transesterification and Intramolecular Cycloaddition of a Chiral Nitron, Using Chelation-Controlled Nitron-Cycloaddition				2004	▼
[Journal Article] A Concise Synthesis of (-)-Codonopsinine and an Approach to Synthesis of (+)-Hyacinthacines A_1 and A_2 from a Polyhydroxylated Cyclic Nitron				2003	▼
[Journal Article] Highly Stereoselective Synthesis of (-)-Monatin, A High-Intensity Sweetener Using Chelation- Controlled Nitron-Cycloaddition				2003	▼
[Journal Article] Highly Stereoselective Synthesis of (-)-Monatin, A High-Intensity Sweetener Using Chelation-Controlled Nitron-Cycloaddition				2003	▼
[Journal Article] Stereoselective Syntheses of 4-Hydroxy-4-suhstiiitrd Gltitarnic Acids					▼
[Patent(Industrial Property Rights)] モナチン類の製造法				2004	▼
[Patent(Industrial Property Rights)] モナチン類の製造法				2003	▼

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