Pharmaceuticals 04

Analgesic effect of rare sugars against neuropathic pain
(Keywords: D-Allose, D-Psicose, Neuropathic pain)

Research representative
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Outline of technology

Neuropathic pain (chronic pain caused by damage of nerves due to cancer, diabetes, infection, etc.) is pain induced by stimuli that usually do not induce pain such as light contact or temperature changes. It may be caused by multiple mechanisms and exhibits complicated pathological features, and no decisive treatment has been developed. This study showed that D-allose and D-psicose are effective for the control of neuropathic pain as a result of screening of rare sugars for analgesic effects.

To examine the effectiveness of test substances for the control of neuropathic pain, we prepared the Chung model (6-week-old male SD rats, groups of 10 animals) and examined the pain threshold in the groups administered D-allose, D-psicose, and a mixture of the two. The pain threshold determined by the von Frey test was 4.4±0.3 g, 4.7±0.3 g, and 5.1±0.4 g, respectively. Significant increases in the pain threshold were observed in the group administered D-allose (3g/kg) 15 minutes after the administration, and in the group administered D-allose (6g/kg) 15, 30, and 60 minutes after the administration, compared with the group administered purified water (Figure). Similar results were also obtained in the groups administered D-psicose and a mixture of D-allose and D-psicose.

Sales points

Basic data for the development of novel drugs or food components effective for the control of neuropathic pain, for which there has been no appropriate treatment, could be obtained.

Expected application fields

(1) Drugs for the control of neuropathic pain
(2) Foods, beverages, and food additives for patients with neuropathic pain

Comparison with existing products

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<th>Advantages</th>
<th>Disadvantages</th>
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<tr>
<td>D-Psicose</td>
<td>Few side effects</td>
<td>Effective by oral administration</td>
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<td>Expensive, A few thousand yen/kg</td>
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References, patents, etc.

Related industrial property rights: Kokai number (2007) 51134

Other matters to note

Developer’s comment
While valuable basic data could be obtained, research for the development of products must be continued. Confirmation of the effectiveness in humans is particularly important.

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