

## KRATKA SAOPĆENJA

## SHORT COMMUNICATIONS

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**Studies in the Sphingolipids Series. XIX.\***  
**Note on the Distribution of C<sub>18</sub> and C<sub>20</sub>-Phytosphingosine**  
**in Yeast Cerebrin**

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Phytosphingosine of yeast cerebrin is a mixture of C<sub>18</sub> and C<sub>20</sub>-base<sup>1-3</sup>. Recently, Oda and Kamiya<sup>4</sup> stated that C<sub>18</sub> and C<sub>20</sub>-compounds are present in 2:1 ratio. The most recent gas chromatographic analysis of Sweeley<sup>5</sup> has shown that the base mixture obtained from yeast carebrin contained 59% of the C<sub>18</sub>-compound and 38% of the C<sub>20</sub>-compound. Thus, there is a fair agreement in the results of both analyses.

We have also investigated yeast cerebrin and came to different conclusion as to the ratio of both component bases. The yeast lipid, generously supplied by N. V. Philips-Roxane, Pharmaceutisch-Chemische Industrie DUPHAR, Amsterdam, was subjected to methanolysis according to Carter's procedure<sup>6</sup>. The crude base mixture was oxidized by both chromic acid in acetic acid solution and periodic acid in methanol solution. In each case a mixture of long-chain aldehydes and acids was obtained. After treatment with methanol the resulting mixture of methyl esters and dimethyl acetals was resolved by means of gas chromatography. The analyses were done using an Aerograph Wilkens A-90 C instrument. A silicone 5 foot column was run at 230° with hydrogen at a flow rate of about 30 ml./min. Fig. 1. represents the analysis of the oxidation products with periodic acid. Dimethyl acetal peaks represent C<sub>18</sub>-phytosphingosine (C<sub>15</sub>-aldehyde) (A) and C<sub>20</sub>-phytosphingosine (C<sub>17</sub>-aldehyde) (B) respectively. The minor peaks C and D belong to the accompanying fatty acid methyl esters. Fig. 2. is a record of the oxidation products with chromic acid. Methyl ester peaks represent the C<sub>18</sub>-compound (C<sub>15</sub>-acid) (C) and the C<sub>20</sub>-compound (C<sub>17</sub>-acid) (D). The minor peaks A and B show the presence of the corresponding dimethyl acetals.

In this manner a series of oxidation assays was carried out and the products analyzed by gas chromatography. Compositions of the base mixture were calculated on the basis of the area under each peak and with supposition that no other bases were present. In all experiments the average percentage of C<sub>18</sub>-phytosphingosine was found to be 35% and that of C<sub>20</sub>-phytosphingosine

\* Paper XVIII: M. Munk-Weinert and M. Proštenik, *Croat. Chem. Acta* 32 (1960) 197.

65% respectively. Thus, the yeast cerebrin base obtained from a source mentioned above is a mixture of the  $C_{18}$  and  $C_{20}$ -compound in nearly 1:2 ratio. This investigation clarifies the fact that  $C_{20}$ -phytosphingosine could primarily be isolated from yeast cerebrin of the same origin<sup>3</sup>.

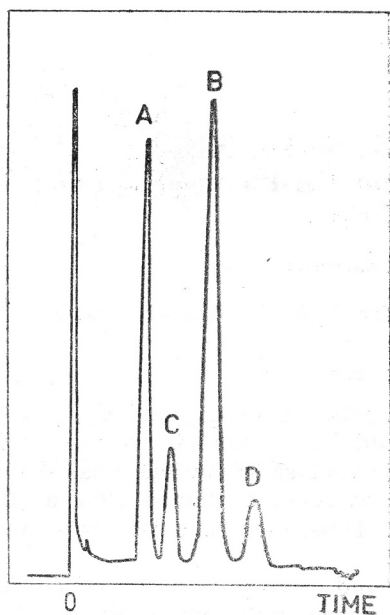


Fig.1

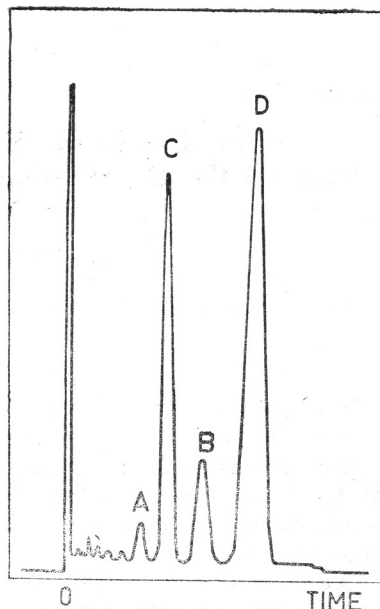


Fig.2

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## IZVOD

## Studije u redu sfingolipoida. XIX.

Bilješka o raspodjeli  $C_{18}$  i  $C_{20}$ -fitosfingozina u kvašćevu cerebrinu

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Pokazano je pomoću plinske kromatografije, da se  $C_{18}$  i  $C_{20}$ -fitosfingozin u kvašćevu cerebrinu nalaze u omjeru 1:2.

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ZAGREB

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