Studies in the Sphingolipids Series. XIX.*

Note on the Distribution of C₁₈ and C₂₀-Phytosphingosine in Yeast Cerebrin

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Phytosphingosine of yeast cerebrin is a mixture of C₁₈ and C₂₀-base₁⁻³. Recently, Oda and Kamiya⁴ stated that C₁₈ and C₂₀-compounds are present in 2:1 ratio. The most recent gas chromatographic analysis of Sweeley⁵ has shown that the base mixture obtained from yeast cerebrin contained 59%/ of the C₁₈-compound and 38%/ of the C₂₀-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 procedure⁶. 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 C₁₈-phytosphingosine (C₁₅-aldehyde) (A) and C₂₀-phytosphingosine (C₁₇-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 C₁₈-compound (C₁₅-acid) (C) and the C₂₀-compound (C₁₇-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 C₁₈-phytosphingosine was found to be 35%/ and that of C₂₀-phytosphingosine

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

**REFERENCES**


**IZVOD**

Studije u redu sfingolipoida. XIX.

**Bilješka o raspodjeli C\textsubscript{18} i C\textsubscript{20}-fitosfingozina u kvaščevu cerebrinu**

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Pokazano je pomoću plinske kromatografije, da se C\textsubscript{18} i C\textsubscript{20}-fitosfingozin u kvaščevu cerebrinu nalaze u omjeru 1:2.