

NOTE

IDENTIFICATION OF ILICICOLINS
WITH ASCOCHLORIN
AND LL-Z 1272HITOSHI MINATO, TERUAKI KATAYAMA,
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The ARIMA group¹⁾ isolated an antibiotic, ascochlorin, from the filter cake of the fermented broth of *Ascochyta viciae* LIBERT in 1968, and elucidated its structure as the formula (III) by X-ray analysis²⁾. On the other hand, the Lederle group³⁾ isolated antibiotics, LL-Z 1272 $\alpha, \beta, \gamma, \delta, \epsilon$ and ζ from an unclassified *Fusarium* species designated LL-Z 1272 and indicated their absolute stereostructures to be as I, II, III, IV, V, and VI, respectively, by chemical degradation and physicochemical data. Although there have been no indirect comparisons, LL-Z 1272 γ is identical* with ascochlorin.

Moreover, cylindrochlorin⁴⁾ was isolated from the mycelium of *Cylindrocladium* sp. by the ARIMA group, and it appears that cylindrochlorin is identical** with the base product (VII) which has already been obtained from LL-Z 1272 ζ by the Lederle group³⁾. In the previous paper⁵⁾, we have also isolated eight antibiotics, ilicicolins A, B, C, D, E, F, G, and H from *Cylindrocladium ilicicola* strain MFC-870. It was indicated that ilicicolins D and E appear to be most closely related to but are not identical with ascochlorin and cylindrochlorin, respectively, by comparisons of physical data and from the ARIMA's result¹⁾ that ascochlorin was obtained in two forms (α - and β -form) by TLC on silica gel.

After our paper appeared, ANDO⁶⁾, one of the members of the ARIMA group, informed us that ilicicolin D might be identical with ascochlorin and that the β -form of ascochlorin was not an isomer of ascochlorin but hydroxy-ascochlorin on reexamination of ascochlorin. So, we carried out identification*** of both compounds, and confirmed that ilicicolin D was identical with ascochlorin (III) by comparisons of IR, NMR, TLC and by mixed melting point determination.

Furthermore, when ilicicolin E was hydrogenated with 5% palladized barium carbonate in ethanol, it afforded ilicicolin D (III), m.p. 168~171°C, $[\alpha]_D -46.8^\circ$. In the NMR spectrum, ilicicolin E showed two vinyl protons at τ 4.03 (d.-d., J=10.3 and 3.0 Hz) and τ 3.45 (d.-d., J=10.3 and 1.9 Hz) in addition to signals corresponding to these of ilicicolin D. As this J-value (10.3 Hz) indicates a *cis*-orientation of the two vinyl protons on a disubstituted double bond, ilicicolin E must be represented by the formula VII, and is identical with the base product obtained by the Lederle group and may be identical with cylindrochlorin****.

Illicicolin F was easily converted into ilicicolin E (VII) by TLC on silica gel (solvent system: benzene-ethyl acetate, 7:1) with the elimination of a β -acetoxy group to a carbonyl group to give an α, β -unsaturated ketone, although the Lederle group obtained VII on mild base treatment of LL-Z 1272 ζ (VI). From this result and comparisons of physical data, ilicicolin F is identical with LL-Z 1272 ζ (VI).

Moreover, ilicicolins A, C, and D have directly been compared with Lederle's LL-Z 1272 α, δ , and γ and it has been confirmed by Dr. KUNSTMANN***** that ilicicolin A is identical with LL-Z 1272 α , C with δ , and D with γ .

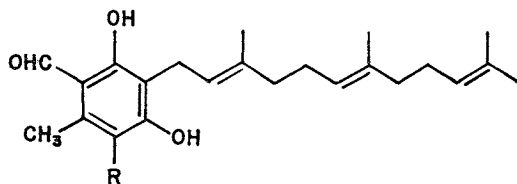
* Dr. M. KUNSTMANN's private communication. (Lederle Laboratory).

** Dr. M. KUNSTMANN also privately informed us that cylindrochlorin appears to be identical with the base product (VII).

*** The authors express their deep gratitude to Dr. K. ANDO (Research Laboratories, Chugai Pharmaceutical Co., Ltd.) for providing us the authentic sample of ascochlorin.

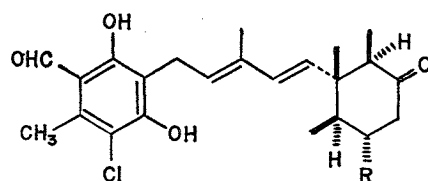
**** see above footnote**

***** The authors are very indebted to Dr. KUNSTMANN for his kindness and generosity in identification of these compounds.



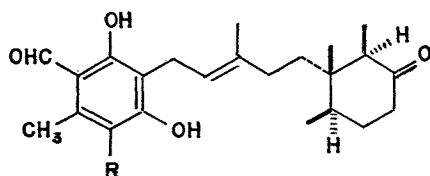
(I): R = Cl

(II): R = H



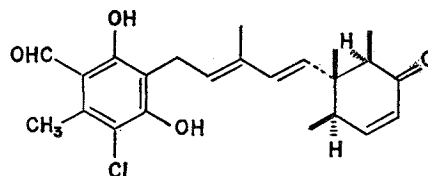
(III): R = H

(VI): R = OAc



(IV): R = Cl

(V): R = H



(VII)

Therefore, the terms of ilicicolins A,B,C, D,E, and F must be removed from the literature. Structural confirmation of ilicicolins G and H is now under investigation in our laboratory.

References

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