



## 2. Antibiotics

### 2.1 Analysis of Low-Volatile High-Mass Compound Using DI-MS - GCMS

#### •Explanation

Compounds that are difficult to vaporize must be made vaporizable with a derivation process to enable analysis by gas chromatograph or gas chromatograph mass spectrometer. However, slightly difficult-to-vaporize compounds can be measured using a direct sample introduction mass spectrometer (DI-MS). Here, even mixtures can be separated to some extent according to differences in boiling points.

Virginiamycin-M (Fig. 2.1.1) and virginiamycin-S (Fig. 2.1.2) are mixed into the commercially available antibiotic virginiamycin. Mass chromatograms of virginiamycin-M at m/z 507 (M-OH) and virginiamycin-S at m/z 823 (M<sup>+</sup>) confirm that the two elements are mixed into the antibiotic (Fig. 2.1.3).

Fig. 2.1.4 is the mass spectrum of virginiamycin-M. The

DI temperature (probe temperature) is 181°C. Fig. 2.1.5 is the mass spectrum of virginiamycin-S. And the DI temperature (probe temperature) is 223°C.

#### •Analytical Conditions

Instrument : GCMS-QP1000 (with DI)

— MS —

Interface Temp. : 250°C

Ionization Method : EI

Scan Range : m/z 100-600

Scan Interval : 2sec

DI Temp. : Room Temp. -30°C/min-250°C  
(10 min)

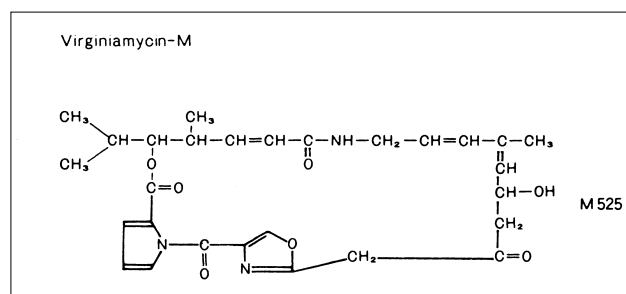


Fig. 2.1.1 Structure of virginiamycin-M

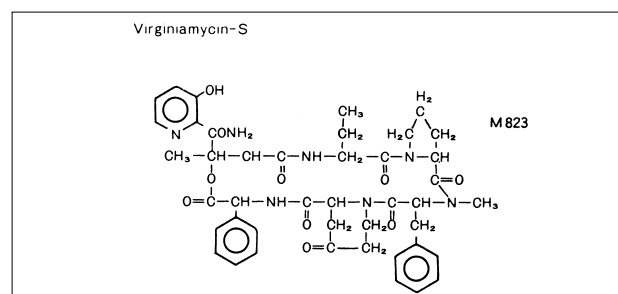


Fig. 2.1.2 Structure of virginiamycin-S

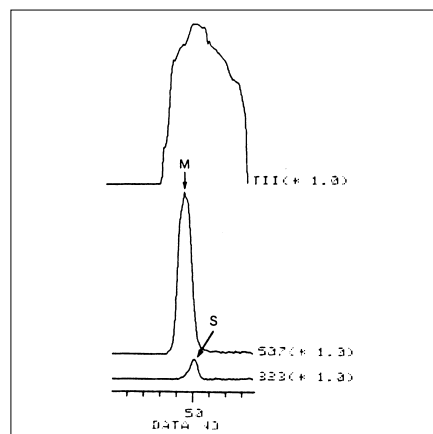


Fig. 2.1.3 Mass chromatogram of virginiamycin

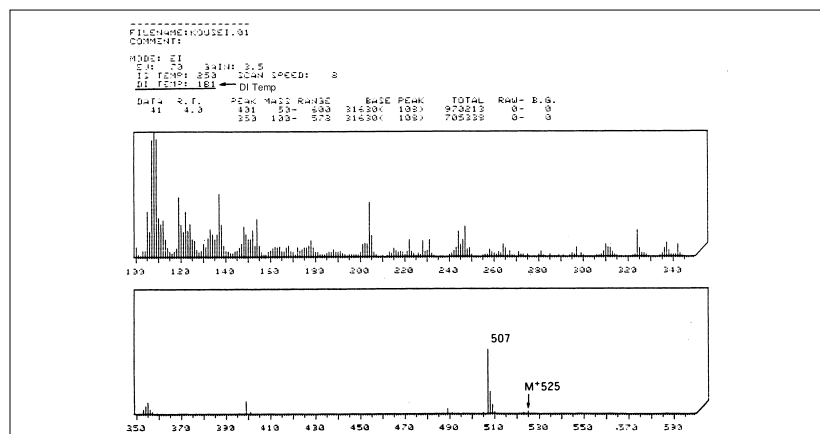


Fig. 2.1.4 Mass spectrum of virginiamycin-M

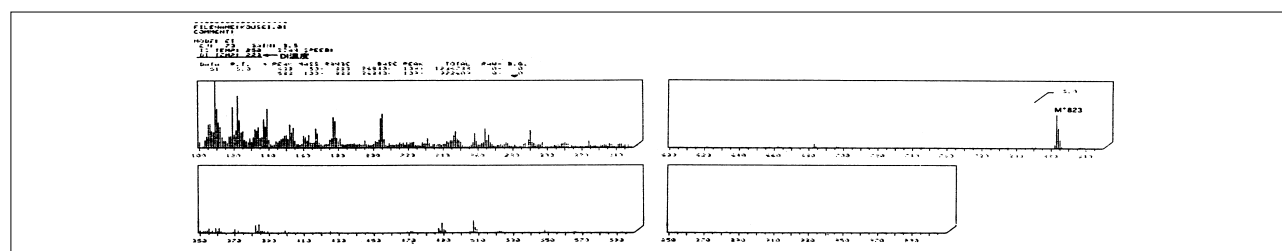


Fig. 2.1.5 Mass spectrum of virginiamycin-S