

FIELD DESORPTION MASS
SPECTROMETRY OF NUCLEOSIDE
ANTIBIOTICS

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(Received for publication January 17, 1978)

The mass spectra of thirteen nucleoside antibiotics of various kinds have been studied using the field desorption method. All antibiotics yielded intensive molecular or quasimolecular ions (QM^+) at emitter currents above the best anode temperature.

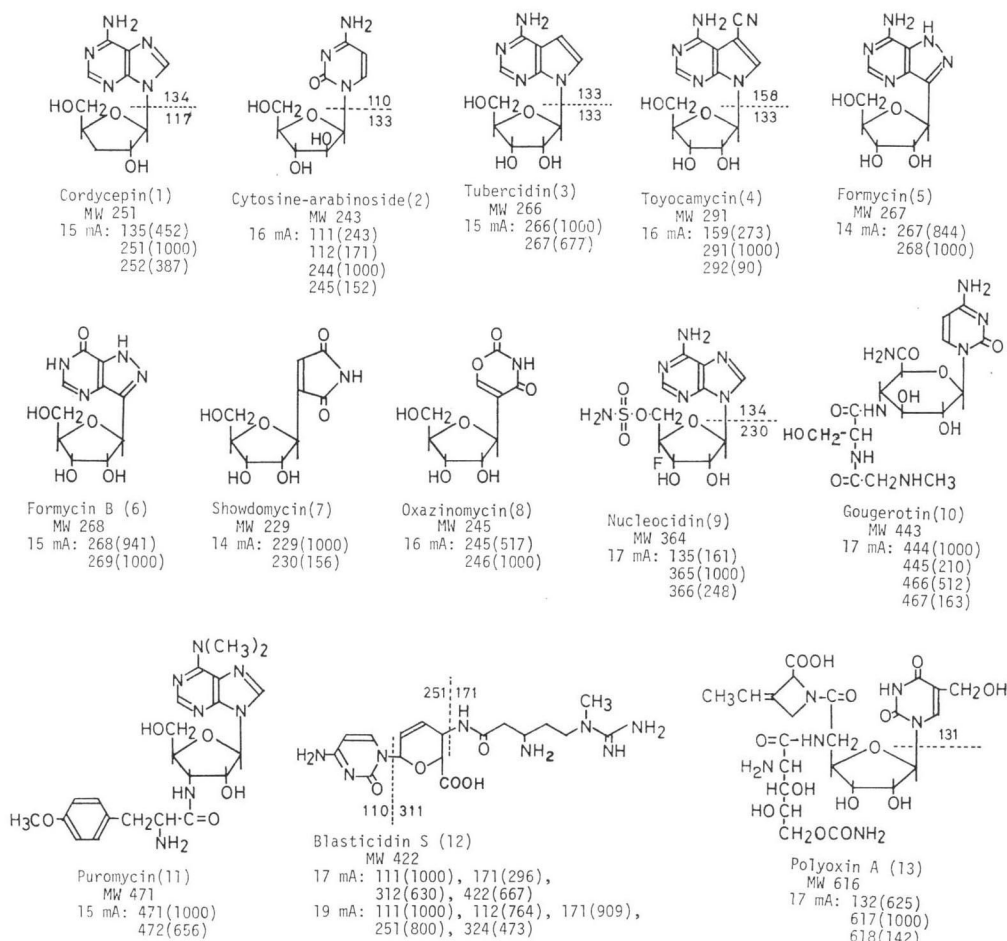
Fragment ions which were characteristic to chemical structures were observed.

Antibiotics: All antibiotics were of reagent

grade and were used without further purification. They are cordycepin (1), cytosine-arabinoside (2), tubercidin (3), toyocamycin (4), formycin (5), formycin B (6), showdomycin (7), oxazinomycin (8), nucleocidin (9), gougerotin (10), puromycin (11), blasticidin S (12) and polyoxin A (13).

Mass spectrometry: The f.d.m.s. were obtained with a double-focusing JEOL 01SG-2 instrument equipped with a combined e.i.f.i.f.d. ion source and a JMA 2000 data analysis system. Sample loading to the emitter was by glass capillary technique using aqueous solutions of samples. Instrument conditions included: accelerating voltage of +10 KV; cathode voltage of -2 KV.

The antibiotics examined are presented with the emitter currents at which the spectra were recorded followed by m/e values and relative intensities.



From these data, the following remarks can be made. The molecular ion or quasimolecular ion, $(M+H)^+$, was usually present as base peak in the spectra of the antibiotics of this group. In C-nucleoside antibiotics, only M^+ or $(M+H)^+$ was observed at best anode temperature. The fragment ions due to the protonated base moiety of the molecules were observed as the most notable in many spectra. Aggregated ions with metallic ions such as Na^+ or K^+ often occurred in the various compounds, *e.g.* nucleosides¹⁾, nucleotides²⁾, and sugars³⁾. In gougerotin (10), QM^+ aggregated with Na^+ (which might stem either from the sample or the solvents) was observed at m/e 466.

The f.d.m.s. appears to have a great potential for the structural study of nucleoside compounds, especially for the determination of their molecular weights.

In *c.i.* mass spectrometry of similar com-

pounds with field desorption emitters as solid probes, HUNT *et al.*⁴⁾ came to similar conclusions.

References

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