

GAS CHROMATOGRAPHY OF SOME STEROID HORMONES AND METABOLITES

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Recent interest in the gas chromatography of steroids, bile acids and steroid hormones (Beerthuis and Recourt, 1960; Sweeley and Horning, 1960; Chemical and Engineering News 1960; VandenHeuvel, Sweeley and Horning, 1960), prompted us to submit, at this time, our results in this area.

Our main interest is steroid hormones and their metabolites that might be found in urine and plasma. The ability to separate and identify minute amounts of these steroids should give promise to better understanding of diseases related to steroid hormones.

A capillary column coated with a silicone compound enabled us to separate androgens, estrogens and progestational steroids.

The following relative retention times are reported for pure compounds. Conditions. 6 ft. x 1/4 in. O.D. packed column using 2-3% S.E. 30 on Chromosorb W 80/100 mesh at 265°C and 60 psi argon carrier.

Etiocholanolone	0.78
Dehydroepiandrosterone	0.82
Androsterone	0.84
Epiandrosterone	0.85
Estradiol-3-Methyl ether	0.87
Androstenedione	1.04
Pregnandiol-3 α , 20 α	1.18
Allo-pregnandiol-3 α , 20 α	1.28
Hydrocortisone	1.62
Reference.....Estradiol	1.00

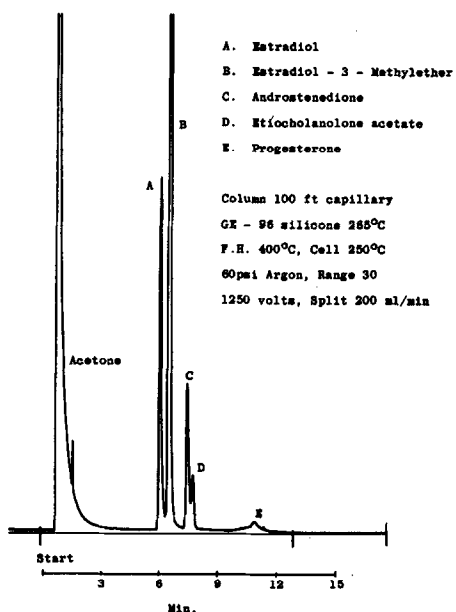


Fig. 1

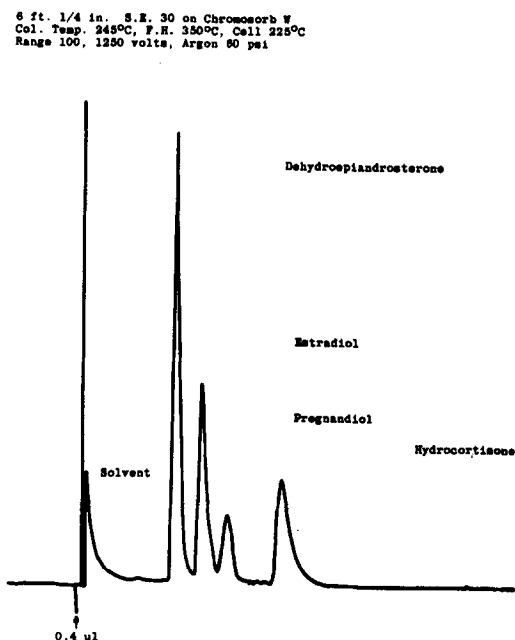


Fig. 2

Figure 1. shows the separation of five steroids through capillary column which was coated with a 1% solution of G.E. S.F. 96 in methylene chloride.

Figure 2. illustrates four steroids separated on a packed column coated with S.E. 30, 2-3% by weight. The separation was satisfactory but the peaks were broader.

The results strongly suggest that all or most all of the biologically important steroids may be identified and quantitated by this means, preferably with a capillary column and an ionization detector.

REFERENCES

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