

mit den Ergebnissen von Applebey (1919) ($F_p = 24^\circ\text{C}$.) bzw. Sanfourche & Gardent (1924) ($F_p = 24,5^\circ\text{C}$.) übereinstimmt.

Zu den röntgenographischen Untersuchungen wurden die Kristalle wegen ihrer grossen Zerfliesslichkeit und Luftempfindlichkeit in ein Markröhrchen gebracht und während der Aufnahme durch einen kalten Luftstrom gekühlt.

Das $\text{NaClO} \cdot 5\text{H}_2\text{O}$ kristallisiert rhombisch. Die Gitterkonstanten wurden zu $a = 8,08$, $b = 16,06$ und $c = 5,33 \text{ \AA}$ bestimmt. (Fehér & Talpay (1944): $a = 7,91$, $b = 15,84$, $c = 5,28 \text{ \AA}$). Die Elementarzelle ist mit 4 Molekeln $\text{NaClO} \cdot 5\text{H}_2\text{O}$ besetzt. Aus diesen Werten errechnet sich

die Dichte zu $1,574 \text{ g.cm.}^{-3}$. Aus den Auslöschungen folgen die Raumgruppen $C_{2v}^1\text{-Pmm}2$, $D_{2d}^1\text{-Pmm}$ und $D_2^1\text{-P}222$.

Literatur

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Crystal data(I) for some androstanes.* By DORITA A. NORTON CHIA TANG LU and ANN E. CAMPBELL, *Department of Biophysics, Roswell Park Memorial Institute, Buffalo, New York, U.S.A.*

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The natural androgenic hormones, a series of C_{19} steroids which are categorized by the lack of a C-17 side chain and by the presence of C-3 and C-17 oxygen substituents, are responsible for the development of primary and secondary male sex characteristics. Although the mechanism of action is not understood, the androgens (both natural and synthetic) are often used in the chemotherapeutic treatment of breast cancer. The response of the mammary tumor is proportional to the androgenic activity, some androgens being more potent than others. In addition to their use in substitution therapy in cases of androgen deficiency, such as hypogonadism, 'androgens' which have been modified to the point where their androgenic activity no longer exists are sometimes used

exclusively for their anabolic function as illustrated by their ability to promote protein synthesis.

The crystal data (Table 1) for a series of androstanes, androgens, which are biosynthetic derivatives of testosterone, have been determined on a General Electric XRD-5 goniostat-equipped X-Ray diffraction unit using $\text{Cu K}\alpha$ radiation. Space groups have been established on the basis of systematic absences and optical activity. It is interesting to note that the isomers 2 and 3, 6 and 7, 6 and 8 are not isomorphous, whereas the isomers 7 and 8 have closely similar lattice constants and are possibly isomorphous. An additional point of interest is that the projection down the b -axis of compounds 1 and 5 has the same size and shape. As can be seen from the discrepancies between some of the calculated and measured densities, solvent of crystallization is present in some of the crystals.

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Table 1. *Crystal data(I) for some androstanes*

	1	2	3	4	5	6	7	8	9
Formula	$\text{C}_{19}\text{H}_{30}\text{O}$	$\text{C}_{19}\text{H}_{30}\text{O}_2$	$\text{C}_{19}\text{H}_{30}\text{O}_2$	$\text{C}_{21}\text{H}_{32}\text{O}_3$	$\text{C}_{21}\text{H}_{32}\text{O}_3$	$\text{C}_{19}\text{H}_{32}\text{O}_2$	$\text{C}_{19}\text{H}_{32}\text{O}_2$	$\text{C}_{19}\text{H}_{32}\text{O}_2$	$\text{C}_{19}\text{H}_{28}\text{O}_3$
Molecular wt.	274.43	290.43	290.43	332.47	332.47	292.45	292.45	292.45	288.41
(g.cm. ⁻³ , meas.)	1.125	1.123	1.150	1.181	1.193	1.141	1.189	1.159	1.150
(g.cm. ⁻³ , calc.)	1.094	1.163	1.143	1.186	1.167	1.079	1.156	1.148	1.149
Z (calc.)	4.114	1.930	2.011	1.992	4.083	4.228	2.057	2.019	4.002
Space group	$P2_1$	$P2_1$	$P2_1$	$P2_1$	$P2_1$	$P2_12_12_1$	$P2_1$	$P2_1$	$P2_12_12_1$
a (Å)*	7.038	11.779	6.556	11.949	7.058	12.149	12.352	12.352	8.374
b (Å)*	41.807	7.912	21.573	7.299	48.170	23.015	7.189	7.148	25.106
c (Å)*	6.337	9.550	6.305	10.679	6.182	6.435	10.364	10.967	7.927
β	116.68°	111.34°	109.01°	91.26°	116.00°	—	114.10°	119.11°	—
V (Å ³)	1666	829	843	931	1889	1799	840	846	1667
Solvent	Ethanol	Heptane and acetone	Heptane	Ethanol	Ethanol	Dioxane	Unknown	Ethanol	Heptane and acetone

1. 5α -androstan-3-one.
2. 5α -androstan-3 α -01-17-one (androsterone).
3. 5α -androstan-3 β -01-17-one (epiandrosterone, isoandrosterone).
4. 5α -androstan-3 α -01-17-one acetate (androsterone acetate).
5. 5α -androstan-17 β -01-3-one acetate (5α -dihydro testosterone acetate).
6. 5α -androstan-3 β , 17 β -diol.
7. 5α -androstan-3 α , 17 β -diol.
8. 5β -androstan-3 α , 17 β -diol (etiocolane-3 α , 17 β -diol).
9. 5β -androstan-3, 17-dione (etiocolane-3, 17-dione).

* $\pm 0.004 \text{ \AA}$.