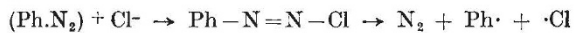


Since chloride anions do not attack acetone, it follows that the decomposition of benzene-diazonium chloride, $(\text{Ph.N}_2) + \text{Cl}^-$, is not a direct decomposition of a diazonium cation, nor yet an intramolecular process. The mechanism:



diazonium salt covalent diazo-compound free neutral radicals

will accord with facts. When this decomposition in acetone, kept neutral with chalk, is carried out in the presence of the relatively inert metals antimony, bismuth, lead and mercury, a rapid reaction occurs at room temperature and the metal is attacked. With mercury, phenyl-mercuric chloride is produced.

These reactions with metals are undoubtedly similar to those which I have previously observed during the decomposition of benzene diazo-acetate¹, and are closely paralleled by the observations of Nesmejanov and his colleagues², who have obtained organometallic compounds by decomposing certain diazonium double salts with metals such as copper, tin and zinc.

To substantiate the experimental evidence reported above, the work is being extended to reaction in other organic liquids.

W. A. WATERS.

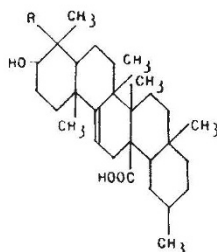
University Science Laboratories,
Durham.
Aug. 6.

¹ Waters, *J. Chem. Soc.*, 114 (1937).

² *Ber.*, **62**, 1010, 1018 (1929); **68**, 1877 (1935).

Structure of β -Boswellinic Acid

THE investigations of Ruzicka, and of Winterstein and their co-workers, have shown that the majority of the triterpene acids (hederagenin, gypsogenin, oleanolic acid, sia- and suma-resinolic acids) are in all probability θ -hydroxy- γ : δ -unsaturated mono-basic acids, as indicated in the accompanying formula¹. On

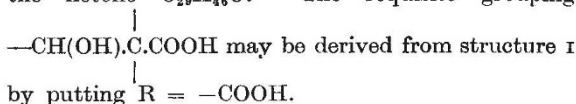


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the other hand, β -boswellinic acid, $\text{C}_{29}\text{H}_{46}(\text{OH})\text{COOH}$, one of the principal triterpene constituents of frankincense, evidently possesses a somewhat different constitution, for on mild oxidation with chromic anhydride this acid is converted into a monoketone $\text{C}_{29}\text{H}_{46}\text{O}$, m.p. 196° (found: C, 84.53; H, 11.11. $\text{C}_{29}\text{H}_{46}\text{O}$ requires C, 84.80; H, 11.30 per cent), which has been characterized by the preparation of an oxime. Oxidation under similar conditions of β -boswellinic methyl ester, however, furnishes the corresponding keto-ester, m.p. 160° (found: C, 79.12; H, 10.20. $\text{C}_{31}\text{H}_{48}\text{O}_2$ requires C, 79.41; H, 10.33 per cent), which forms an oxime, m.p. 200° .

These findings necessitate the assumption that β -boswellinic acid is a β -hydroxy-acid, the expected

facile elimination of carbon dioxide from the β -keto-acid first formed during the oxidation giving rise to the ketone $\text{C}_{29}\text{H}_{46}\text{O}$. The requisite grouping



It is of interest to note that in gypsogenin $\text{R} = -\text{CHO}$, and in hederagenin $\text{R} = -\text{CH}_2\text{OH}$, and it is significant that oxidation of the primary alcoholic group of the latter compound gives a β -hydroxy-acid, the further oxidation of which is exactly analogous to that of β -boswellinic acid².

A full account of this investigation will be published elsewhere.

J. C. E. SIMPSON.

King's College,
London.
July 26.

¹ Ruzicka, Goldberg, and Hofmann, *Helv. chim. Acta*, **20**, 325 (1937).

² Jacobs and Gustus, *J. Biol. Chem.*, **69**, 641 (1926).

Succession of Broods in *Lebistes*

IN connexion with the note by G. L. Purser in NATURE of July 24 on "Succession of Broods of *Lebistes*", it has long been known that several of the viviparous fish, such as *Lebistes*, are fertilized for a long time after one copulation. E. Philippi has described this phenomenon in *Glaridichthys*¹. Johs. Schmidt found it in *Lebistes*². He says that he had observed seven broods in succession. I have noted up to eight broods³.

In my paper in 1922 I gave a photomicrograph showing the spermatozoa lying ready in the ovary for the next fertilization, with their heads as near the immature eggs as possible. Plainly enough there is competition between the spermatozoa, and it is remarkable that when a female has been fertilized by a male of one race of *Lebistes* and has produced some few broods within a few months, and then a new male of another race of *Lebistes* is put into the tank immediately after a birth, the next brood will be from fertilization by the new male. The old spermatozoa cannot compete with the fresh ones. Ordinarily a mixed brood is only obtainable when both males are together with the female at the same time.

Ö. WINGE.

Carlsberg Laboratory,
Copenhagen.
August 13.

Zoo. Jahrb., **27** (1908).

² *Comptes-rendus Laboratoire Carlsberg*, **14** (1920).

³ *J. of Genetics*, **12** (1922); **18** (1927).

Homologous Loci in Wild and Cultivated American Cottons

ON cytological grounds¹, the New World cultivated cottons are thought to be allopolyploids with two genomes each of thirteen chromosomes derived from species cytologically homologous with the present Asiatic *arboresum-herbaceum* group of species and with the North American thirteen chromosome species (*aridum*, *Armourianum* and *trilobum*). Genetical confirmation of the part played by the present cultivated Asiatic cottons or their ancestors in the origin