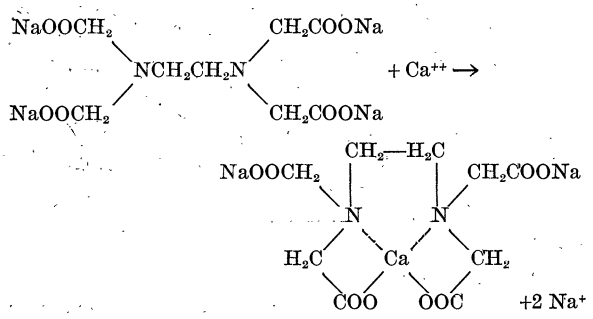
Comments and Communications

Demineralization of Hard Tissues by Organic Chelating Agents

THE sodium salts of ethylene-diamine tetracetic acid are noncolloidal organic chelating agents that resemble the inorganic polyphosphates (e.g., sodium hexametaphosphate) in their ability to form soluble nonionic chelates with a large number of metallic ions. The reaction with calcium is thought to proceed as follows:



The resulting complex is stable over a wide range of temperature (*1*). Complex compounds with calcium and other heavy metal ions are formed at variable hydrogen ion concentrations. These compounds are formed most efficiently in alkaline solutions (*2*). Since decalcification of bone and other hard tissues has hitherto only been accomplished in acid media, it was of interest to see whether these chelating agents would make a suitable demineralizing medium.[1]

Preliminary investigations have shown that demineralization in saturated aqueous solutions at pHs ranging from 5.0 to 10.3 can be accomplished. The solubility ranges from 11 g/100 ml water for the disodium salt (pH 5.0) to 103 g/100 ml water for the tetrasodium salt (pH 10.3). The time required is about the same as that needed for a comparable specimen in the formic-citric acid method of Morse (*3*), and slightly longer than that required for 5% HNO_3. Preservation of structural detail and of the staining properties of the tissues seems excellent. This was particularly evident in the elements of the pulp and bone marrow. Further experiments to determine the optimal pH and concentration of the chelating compounds for the preservation of enzymes and tissue elements are now being conducted.

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[1] The chelating agents used in this work were obtained from Alrose Chemical Company, Providence, R. I., and the Bersworth Chemical Company, Framingham, Mass.

References

1. SCHWARZENBACH, G., and ACKERMAN, H. *Helv. Chim. Acta*, **30**, 1798 (1947).
2. *Powerful Organic Chelating Agents*. Tech. Bull. No. 2. Framingham, Mass.: Bersworth Chemical Company.
3. MORSE, A. *J. Dental Research*, **24**, 143 (1945).

Zoological Nomenclature: Notice of Proposed Suspension of the Rules in Certain Cases for the Avoidance of Confusion and the Validation of Current Nomenclatorial Practice (A. (n.s.) 7)

NOTICE is hereby given that the possible use by the International Commission on Zoological Nomenclature of its plenary powers is involved in applications relating to the undermentioned names included in Parts 1 to 4 of the *Bulletin of Zoological Nomenclature*, each of which parts was published on April 20, 1951:

(1) *Applications in Part 1*

1) *Pleurocera* Rafinesque, 1818 (Class Gastropoda), (pp 6–17) (File 83).
2) *Aphidius* Nees, 1818 (Class Insecta, Order Hymenoptera), (pp. 18–20) (File 149).
3) Trivial name *ajax* Linnaeus, 1758 (as published in the combination *Papilio ajax*), (Class Insecta, Order Lepidoptera) (pp. 26–30) (File 192).
4) *Mytilus* Linnaeus, 1758 (Class Pelecypoda), (proposed validation of an error in *Opinion* 94), (pp. 31–32) (File 193).

(2) *Applications in Part 2*

5) *Scaphander* Montfort, 1810 (Class Gastropoda), (pp. 35–36) (File 378).
6) *Monoculus* Linnaeus, 1758 (pp. 37–39) (File 377).
7) *Rantus* Dejean, 1833 (Class Insecta, Order Coleoptera), (pp. 40–45) (File 171).
8) *Acantholyda* Costa, 1894 (Class Insecta, Order Hymenoptera), and *Acanthocnema* Becker, 1894 (Class Insecta, Order Diptera), (p. 46) (File 175).
9) *Rhina* Latreille [1802–1803] and *Magdalis* Germar, 1817 (Class Insecta, Order Coleoptera), (pp. 47–55) (File 202).
10) *Cardinia* Agassiz [1841] (Class Lamellibranchiata), (pp. 59–64) (File 208).

(3) *Applications in Part 3*

11) Trivial name *sirtalis* Linnaeus, 1758 (as published in the combination *Coluber sirtalis*), (Class Reptilia) (pp. 67–68) (File 433).
12) *Crangon* Weber, 1795, *Alpheus* Weber, 1795, *Crangon* Fabricius, 1798, and *Alpheus* Fabricius, 1798 (Class Crustacea, Order Decapoda), (pp. 69–80) (File 231).
13) *Scyllarides* Gill, 1898 (Class Crustacea, Order Decapoda), (pp. 81–82) (File 473).
14) *Lysiosquilla* Dana, 1852 (Class Crustacea, Order Stomatopoda), (pp. 83–85) (File 474).