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Motion of K⁺ Ions in Mercury Vapor

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ABSORPTION SPECTRA CHARACTERISTIC OF VITAMIN A IN ANIMAL AND VEGETABLE OILS

J. B. PHILIPSON AND JAY W. WOODROW

A continuation of our previous work on the ultra-violet absorption spectra of substances showing vitamin A activity, tends to further substantiate the evidence that the absorption band in the regions 325-330 m. μ ., which Morton and Heilbron have shown to be characteristic of vitamin A in animal fats, also characterizes vegetable compounds containing the growth promoting factor.

Using the same photoelectric spectrophotometer with which we showed this selective absorption in juices and oils extracted from carrots and from spinach, we have found that fresh orange juice, shown by Osborne and Mandel to contain the growth promoting factor, also shows a distinct absorption band at about 328 m. μ .

These results form the basis for our conclusions that, since they show the same selective absorption, the growth promoting factor in vegetables and the vitamin A in animal oils, if not identically the same compound, at least have very closely related chemical structure.

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MOTION OF K⁺ IONS IN MERCURY VAPOR

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Ionization by positive ion impact was studied in A, Ne, N₂, CO, He, at voltages up to 4000 volts and the results seem to check with those of Sutton (Phys. Rev. 33, 363, 1929) and Beeck (Ann. d. Phys. 6, 8, 1001, 1930) wherever a check was possible.

When the work was extended to an element heavier than K⁺ i.e., Hg. the results are more complicated. The evidence seems to indicate; (a) reflection of K⁺ ions at all voltages, (b) an increase in mean free path with increase in voltage, (c) no ionization below 250 volts, but above 250-350 volts ionization increases with increase in voltage.

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