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Conversion of Vitamin B_{12b} into Vitamin B_{12}

SIR,—The spectra[1,2] of vitamins B_{12} and B_{12b} resemble each other in general character, but differ considerably in the position and magnitude of particular features. A structural similarity is thus evident between the two compounds[3] which is reflected in certain of their chemical reactions. On treatment with cyanide ion[4] in aqueous solution, both compounds form purple cyanide complexes having the *same* absorption spectrum, which is markedly different from those of the two vitamins. On removing cyanide from the complex, vitamin B_{12} reverts to its original state, as shown by its absorption spectrum, microbiological activity, chromatographic behaviour[5], and general crystallographic appearance. On removing the cyanide from the B_{12} -cyanide product, however, the spectrum does not revert to that of B_{12b}, but is strikingly similar to that of B_{12}. The regenerated material, moreover, shows further properties similar to those of B_{12}, viz. microbiological activity against *Lactobacillus lactis* Dorner and behaviour on paper chromatography[5]. These observations lead to the conclusion that B_{12b} may be converted, through intermediate formation of a cyanide complex, into a substance which, as far as can be ascertained at present, is identical with vitamin B_{12}. As B_{12} appears to form the major constituent of the B_{12} group of factors in materials derived from the *in vitro* fermentation of micro-organisms, the above conversion assumes preparative importance.

A full account of this work is being submitted for publication in your Journal.

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