We have just observed that *ethyl* phenyl sulfide with *n*-butyllithium gives *o*-ethylmercaptobenzoic acid.

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Hydrogenation of Wood

BY H. P. GODARD, JOSEPH L. MCCARTHY AND HAROLD HIBBERT

Studies on hydrogenation of lignin and other plant materials at high pressures have now shown that maple and spruce wood meals readily undergo hydrogenation. The two latter products were first freed from resin, fats, etc., by the customary preliminary extraction treatment with alcohol–benzene, alcohol, and water in the order named, then dried, suspended in anhydrous dioxane, the copper–chromium oxide catalyst added and the mixture then subjected to the action of hydrogen at around 250 to 280° at a pressure of 5000–6000 pounds per square inch (333–400 atm.) for periods of twelve to sixteen hours.

The main products isolated were (a) 4-*n*-propylcyclohexanol-1, b. p. 92–95° (7 mm.), refractive index n^{25}_D 1.4633, and (b) 4-*n*-propylcyclohexanediol-1,2, b. p. 107–110° (1 mm.), refractive index n^{25}_D 1.4808; some higher boiling oils also were obtained. These substances undoubtedly originate from the lignin present in the wood, the combined yields of (a) and (b) in the preliminary work, when calculated on the total (Klason) lignin present originally, amounting to around 60 to 70% in the case of maple and about 35 to 40% in the case of the spruce meal. Similar results were obtained using wood meal previously extracted with cold 5% alkali, although in these cases the yields were somewhat lower.

Presumably other suspending media such as tetralin, decalin, cyclohexane, as well as the above solvents (a) and (b), can be used in place of dioxane, and these are being actively investigated.

It is of considerable interest that the accompanying carbohydrate–polysaccharide components also undergo simultaneous hydrogenation and hydrogenolysis as indicated by the large absorption of hydrogen (about 3.2 moles of hydrogen per 100 g. of wood meal). The nature of these reactions and of the resulting products are also under investigation.

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The Effect of Chlorine Substitution on the Fungistatic Properties of Acetic and Propionic Acids

BY CHARLES HOFFMAN, T. R. SCHWEITZER AND GASTON DALBY

In a recent paper the fungistatic properties of β-iodopropionic acid were reported in connection with a study of a series of normal, branched-chain, and substituted fatty acids.[1] It was shown that β-iodopropionic acid had remarkable fungistatic properties which apparently depended to some extent on the nature of the iodine atom itself. The effect of substituents is also of interest from the point of view of the relationship of molecular structure to fungistatic power. Monochloroacetic, α-chloropropionic, and β-chloropropionic acids are readily available and their fungistatic curves illustrate the effect of the introduction of a single chlorine atom in all possible positions.

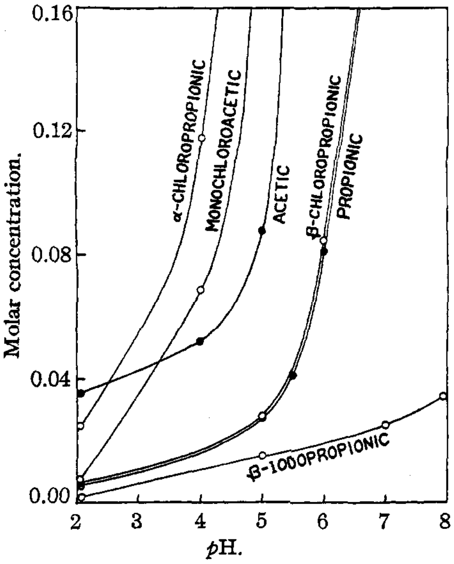

Fig. 1.—Molar concentrations of the indicated acids at various *p*H values necessary to inhibit mold for forty-eight hours at 37.5°.

The method used was as previously reported.[1] β-Chloropropionic acid has a curve practically identical with that of propionic acid itself and is markedly different from the β-iodopropionic acid curve which is indicated on the graph for comparison. The introduction of chlorine on the alpha carbon of propionic acid sharply decreases its fungistatic properties. Monochloroacetic acid is also much less effective than acetic acid except

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[1] Hoffman, Schweitzer and Dalby, *Food Research*, **4**, 539 (1939).