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The Polyoxyethylene Derivatives of Pentachlorophenol

Yoshitaka TSUCHIYA*

The pentachlorophenyl ethers of tri-pentaoxyethyleneglycols (I), their chlorides (II), and di-pentachlorophenyl ethers (III) were prepared and tested as to their antigermicidal activities against Mycobacterium, Penicillium, Trichophyton & Microsporum, in order to investigate the effect of hydrophilic oxyethylene linkages.

I was prepared from potassium pentachlorophenolate and *tri*-~pentaoxyethyleneglycol chlorohydrins. II and III were synthesized from the phenolate and *tri*-~pentaoxyethyleneglycol dichloride, respectively, by Williamson's condensation process. They were almost colorless viscous liquids except III. III was white crystals melting at 114.5° (*tri*), at 86.5-7.5° (*tetra*), and at 84.5-5.5° (*penta*). Their IR spectra were also presented. The inhibitory powder of those ethers against microorganisms were the largest in the compounds I. Particularly the *tri*- and *penta*oxyethyleneglycol ethers of pentachlorophenol were the most effective. These results suggest that the surface activity of pentaoxyethyleneglycol ethers seems to enhance the germicidal activity of those series.

The surface tensions of aq. solutions of pentaoxyethyleneglycol ether were also determined and its surface activity was confirmed.

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