

## Improving the Aqueous Solubility of Taxol through Altering XLOGP3

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**Abstract :** Taxol (generic name paclitaxel) is an antineoplastic drug used to treat breast, lung, and ovarian cancer. It performs exceptionally well against a wide variety of tumors, including B16 melanoma, L1210 and P388 leukemias, MX-1 mammary tumors, and CX-1 colon tumor xenografts. However, despite taxol's efficacy in antitumor activity, its aqueous solubility is extremely poor, decreasing its bioavailability and making it difficult for the body to absorb. The objective of this study is to improve the solubility of taxol, thus increasing the bioavailability of the drug in preventing cancer. By modifying the structure of taxol, four novel taxol derivatives were created with improved solubilities. Two of the derivatives were given an additional hydrogen donor and acceptor and thus showed a pronounced positive change in solubility. The results of this work solve the issue of taxol's inadequate solubility and show potential in increasing the absorption of the drug.

**Keywords :** Taxol, Solubility, improving bioavailability, logP

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