Dietary modulation of human platelet phenolsulphotransferase activity.

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Abstract

1. The mammalian phenolsulphotransferase enzymes are known to play a major role in both the detoxification and possibly the activation of pre-carcinogenic phenols and aromatic amines. 2. Vegetable cytosol preparations were tested in vitro for their ability to affect the sulphation of two reference compounds (rho-nitrophenol and dopamine, which are selective substrates for the phenol and monoamine forms of phenolsulphotransferase respectively), and to act as substrates for the enzymes in comparison with the same reference compounds. 3. The majority of cytosols greatly decreased (>80%) the sulphation of either or both the reference compounds. This effect may have been due to either enzyme inhibition or substrate binding. 4. Whereas some of the cytosols were sulphated under the assay conditions, most were not. Additionally, it was found that a cytosol that decreased the sulphation of the two reference compounds was not necessarily poorly sulphated itself. 5. It is concluded that dietary factors have the potential to play a major role in modulating the sulphation detoxification pathway, and have wide ranging implications with regard to adverse drug reactions.

PMID: 9004454 [PubMed - indexed for MEDLINE]