

## 5. Role of phenothiazines and Structurally Similar Compounds of Plant Origin in the Fight against Infections by Drug

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*Antibiotics (2013), 2, 58-71*

### Abstract

Phenothiazines have their primary effects on the plasma membranes of prokaryotes and eukaryotes. Among the components of the prokaryotic plasma membrane affected are efflux pumps, their energy sources and energy providing enzymes, such as ATPase, and genes that regulate and code for the permeability aspect of a bacterium. The response of multidrug and extensively drug resistant tuberculosis to phenothiazines shows an alternative therapy for the treatment of these dreaded diseases, which are claiming more and more lives every year throughout the world. Many phenothiazines have shown synergistic activity with several antibiotics thereby lowering the doses of antibiotics administered to patients suffering from specific bacterial infections. Trimeprazine is synergistic with trimethoprim. Flupenthixol (Fp) has been found to be synergistic with penicillin and chlorpromazine (CPZ); in addition, some antibiotics are also synergistic. Along with the antibacterial action described in this review, many phenothiazines possess plasmid curing activities, which render the bacterial carrier of the plasmid sensitive to antibiotics. Thus, simultaneous applications of phenothiazine like TZ would not only act as an additional antibacterial agent but also would help to eliminate drug resistant plasmid from the infectious bacterial cells.