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## Formulation and evaluation of theophylline ethosomal gel

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Theophylline has 8 hours of half life and is used for chronic lung disorder treatment, especially asthma. Oral theophylline is not always recommended because it requires frequent administration. The entrapment of drugs in a vesicle have shown improved delivery at the targeted site and also have reduced the side effects thus increasing patient compliance. Ethosomes are lipid vesicular carriers that contain high concentration of ethanol which provide better penetration of drug into the skin. This study was aimed to obtain the stable formula of gel. Theophylline ethosomes were prepared by hot method (40°C). The compositions of theophylline ethosomes were phosphatidylcholine (2%), ethanol (40%), propylene glycol (10%) and distilled water up to 100%. Gel formulation was optimized by varying concentration of the carbomer base (0.5; 1; 1.5; and 2%). Stability test of theophylline ethosomal gel was performed before and after the cycling test with different temperature (5°C and 40°C). The obtained value of the viscosities before cycling test were 350-1.300 cP and after cycling test were 425-1300 cP; the pH values before cycling test were 7.19-5.97 and after cycling test were 7.39-6.26; and the dispersive values before cycling test were 9.5-5.15 cm<sup>2</sup> and after cycling test were 9.1-5.1 cm<sup>2</sup>. It was concluded theophylline ethosomal gel with 25 of carbomer has the best stability.

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