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MEETING ABSTRACT

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**The role of bile acids in drug penetration through biological membranes**

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**Background:** One of the greatest challenges in the pharmaceutical industry is the development of new technologies that enable poorly membrane-permeable drugs to effectively penetrate biological membranes. Currently, bile acids as compounds that may facilitate transport of drugs across various membranes are the topic of extensive research [1]. Therefore, the aim of this work is to emphasize the role of bile acids in this field.

**Methods:** The relevant original and review articles published from 2000–2015 in various databases were analysed.

**Results:** There has been a growing interest in using bile acids for modification of drug absorption and drug delivery due to their ability to act as a drug carrier system in the form of mixed micelles, bilosomes and chemical conjugates with drug molecules. The role of bile acids in promoting drug permeation has been experimentally illustrated in various pharmaceutical formulations for oral, nasal, ocular, buccal, pulmonary and rectal administration route. Due to amphiphilic properties, bile acids can interact with biological membranes, thus disturbing their functioning. The final outcome of bile acids on the cell membrane depends on many factors including type and structure of bile acids and membrane characteristics. Bile acids have an ability to enhance the epithelial transport of hydrophilic drugs through the paracellular route and that of hydrophobic compounds through both paracellular and transcellular routes.

**Discussion:** The unique and distinguishable structure and specific physicochemical properties of bile acids have enabled them to be used in the development of drugs, as pharmaceutical tools and potential drug carrier systems that could improve, control and localise drug delivery. The available information will probably yield, in the near future, new drug formulations with improved pharmaceutical properties.

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**Reference**

1. Stojančević M, Pavlović N, Goločorbin-Kon S, Mikov M: **Application of bile acids in drug formulation and delivery.** *Front Life Sci*, 2013; 7(3–4):112–122. doi:10.1080/21553769.2013.879925

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