Self-Emulsifying Drug-Delivery Systems Modulate P-Glycoprotein Activity: Role of Excipients and Formulation Aspects

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Self-emulsifying drug-delivery systems (SEDDS) have been widely employed to ameliorate the oral bioavailability of P-glycoprotein (P-gp) substrate drugs and to overcome multidrug resistance in cancer cells. However, the role of formulation aspects in the reduced P-gp activity is not fully understood. In this review, we first explore the role of various SEDDS excipients in the reduced P-gp activity with the main emphasis on the effective excipient concentration range for excipient-mediated modulation of P-gp activity and then we discuss the synergistic effect of various formulation aspects on the excipient-mediated modulation of P-gp activity. This review provides an approach to develop a rationally designed SEDDS to overcome P-gp-mediated drug efflux.

Keywords:
Cancer, effective concentration range, multidrug resistance (MDR)