



## Improved Delivery of Repaglinide through Different Polymeric Devices

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**SUMMARY.** Repaglinide (RGL) loaded polymeric drug delivery devices like microcapsules (MC) and transdermal patches (TDP) were formulated and there *in vitro-in vivo* parameters compared to find out the best route of drug delivery. The formulations were subjected to various studies like hypoglycemic activity, glucose tolerance and pharmacokinetic studies. The formulation TDP1 having drug-polymer ratio 1:1 showed comparatively higher RGL release and better permeation across mice skin. Comparatively higher RGL content was found in TDP1 ( $99.6 \pm 1.8 \%$ ) than MC1 ( $89.2 \pm 2.3 \%$ ). From the glucose tolerance test, transdermal route effectively maintained the normoglycemic levels in contrast to the oral group, which produced remarkable hypoglycemia. The significantly high area under curve (AUC) values observed with transdermal system also indicate increased bioavailability of drug from these systems compared to oral route. The transdermal system of RGL exhibited better control of hyperglycemia besides more effectively reversing the complications associated with diabetes mellitus than oral administration in mice.

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**KEY WORDS:** Microcapsules, Transdermal patch, Repaglinide, Pharmacokinetics.

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