CHAPTER - 7

CONCLUSIONS

Risperidone and Olanzapine, newer atypical antipsychotics are highly effective and safer in the treatment of psychosis. Low maintenance dose therapy of these antipsychotics has the capability to minimize the side effects, overall costs and compatibility issues. To overcome the problems of conventional drug delivery, eudragit containing matrix type transdermal patches of risperidone and olanzapine were developed.

For the development of successful TDDS, various permeation enhancers belonging to the group of surfactants (cationic surfactant, benzalkonium chloride (BC); anionic surfactant, sodium lauryl sulphate (SLS); non-ionic surfactant, span 20) and vegetable oils (olive oil, jojoba oil and groundnut oil) were also investigated in the present study to find out their effect on the rate of permeation of drug through TDDS.

The results of risperidone TDDS showed that the most promising formulation was batch RE3 (formulation containing ERL 100: ERS100, 3:2; risperidone 20%; dibutylphthalate 20% and 10% olive oil, all in %w/w). This formulation was able to deliver drug up to 3 days at a flux equivalent to the high dose currently marketed oral product from the patch containing surface area 10 cm$^2$.

In case of olanzapine TDDS, the best formulation was OD3 (formulation containing ERL 100: ERS100, 3:2; olanzapine 20%; dibutylphthalate 30% and 10% span 20, all in %w/w) and this studied formulation proved the sustained release potential of prepared transdermal patches for better therapeutic profiles.

Thus optimized transdermal formulations of risperidone and olanzapine using polymers such as ERL 100 and ERS 100 with olive oil and span 20 as permeation enhancers demonstrated their ability to give sustained release, because of excellent release and permeation of drug and its influence on tranquillizing efficacy and better bioavailability data of TDDS in comparison to oral drug delivery. The developed formulations of these antipsychotics are expected to improve the patient compliance, form better dosage regimen and provide maintenance therapy to psychotic patients.
These promising results showed the feasibility of delivering atypical antipsychotics (risperidone and olanzapine) through transdermal drug delivery system. The developed TDDS of these antipsychotics may prove to be a better alternative to conventional dosage forms in psychotic patients as revealed by the results of pharmacodynamic studies in rodents and pharmacokinetic studies in rabbits. These studies can help industry to scale up for commercial production. Further these findings may offer the clinicians more therapeutic options for their psychotic patients to optimize their care.