

LIST OF RESEARCH PROJECTS COMPLETED SUCCESSFULLY

DEPARTMENT OF PHARMACOGNOSY

1. Comparative bioprofiling & chemoprofiling studies of *Tinospora cordifolia* & *Tinospora sinensis*.
2. Investigation on *Caralluma fimbriata* for antidiabetic activity.
3. Pharmacognostic, phytochemical, antidiabetic and free radical scavenging studies of *Curcuma amada* Roxb.
4. Evaluation of antinociceptive, antiinflammatory & diuretic activities of *Pavonia odorata*.
5. Pharmacognostic, phytochemical & hepatoprotective potential studies on *Bombax ceiba*.
6. Pharmacognostic, phytochemical, antioxidant & antidiabetic studies of *Paspalum scrobiculatum* (Linn).
7. Phytochemical & pharmacological screening of *Ougeinia oojeinensis* (Roxb.)
8. Pharmacognostic, phytochemical & hepatoprotective studies of *Amorphophallus companulatus* (Roxb.).
9. Development of quality control methods for standardization of Dashamularishita.
10. Pharmacognostical phytochemical, antioxidant and antidiabetic study of *Cedrus deodara* Roxb. (Heart wood).
11. Antiinflammatory and antinociceptive study of root extracts of *Costus speciosus* Smith.
12. Development of quality standards and comparative evaluation of Chopchiniyadi churna- A polyherbal formulation.

13. *In vitro* and *in vivo* antioxidant activity of aqueous & methanolic extracts of *Premna integrifolia* Linn. (Roots).
14. Formulation and evaluation a polyherbal Sitopaladi churna.
15. Evaluation of antidiabetic and antioxidant activity of *Artocarpus heterophyllus* Lam.
16. Formulation and evaluation a polyherbal antifungal and antibacterial ointment.
17. Evaluation of anti inflammatory and analgesic potential of fruits of *Ficus carica* Linn.
18. Formulation and evaluation of herbal face pack for the management of acnes.
19. Effect of precursors and elicitors on the production of berberine from tissue cultures of *Tinospora cordifolia* wild.
20. Evaluation of *in vitro* & *in vivo* antioxidant potential of *Mussaendra frondosa* Linn. and its effect on hepatic enzymes.
21. Study of elicitor effect in the production of reserpine from tissue cultures of *Rauwolfia serpentina* Benth.
22. Evaluation of hair growth promoting potential of *Abrus precatorius* linn. and *Hemidesmus indicus* Linn. in male albino rats.
23. Investigation of anti asthmatic activity in *Pavonia odorata*.
24. Evaluation of nephroprotective potential of rhizomes of *Curcuma amada* (Roxb.).
25. Evaluation of anti inflammatory and anti nociceptive activity of *Lagasca mollis* Cav. and its sub fractions.
26. Anti diabetic, anti inflammatory and anti nociceptive activities of various sub- fractions of *Premna integrifolia* Linn.

27. Enhancement of stability and antioxidant properties of soymilk powder used as nutraceutical.
28. Anti nociceptive, anti inflammatory and anti tussive studies of some indigenous plants used in traditional systems of medicine.
29. Evaluation of antidiabetic and antioxidant activities of *Artocarpus heterophyllus* Lam.
30. Evaluation of anti tussive activity of some indigenous plant and its polyherbal formulation.
31. Evaluation of antidiabetic activity of *Curcuma zedoaria* (Rosc.)
32. Evaluation of antidiabetic and antioxidant activities of *Ichnocarpus frutescens* R. Br.
33. Evaluation of hepatoprotective and antioxidant potential of *Grangea maderaspatana* Poir.
34. Evaluation of *in vitro* and *in vivo* antioxidant potential of *Mussaendra frondosa* Linn. and its effect on hepatic enzymes.
35. *In vitro* and *in vivo* evaluation of *Nardostachys jatamansi* rhizomes in experimentally induced urolithiasis.
36. Evaluation of antidiabetic and antioxidant activity of roots of *Cyperus pangorei* Rottb.
37. Evaluation of hair growth promoting potential of *Terminalia belerica* Roxb. and *Nardostachys jatamansi* DC. in male albino rats.
38. To evaluate the efficacy of formulation (SA-1 & SA-2) and Regular extract (RA-1 & RA-2) for *in vitro* antioxidant, anti inflammatory and antihepatotoxic activity.
39. Development and optimization of novel polyherbal formulation using *Ginkgo biloba*, *Panax ginseng* and Soya isoflavone for antistress activity.

40. Development and evaluation of herbal formulation for seborrheic dermatitis.
41. Effect of *Cubeba officinalis* on ethylene glycol induced urolithiasis in rats.
42. Screening of antidiabetic activity of rhizomes of *Hedychium coronarium* on the basis of traditional knowledge.
43. Development of novel polyherbal formulation for antimicrobial activity.
44. Pharmacological assessment of *Acacia nilotica* L. to improve male sexual performance and its effect on androgenic hormones.
45. Evaluation of hair growth activity of some traditional plants and development of polyherbal formulations.

DEPARTMENT OF PHARMACEUTICS

1. Preparation & evaluation of solid dispersion of Oefixime trihydrate with skimmed milk.
2. Formulation & evaluation of transdermal patches of miconazole nitrate.
3. Formulation & evaluation of matrix tablet of carbamazepine.
4. Development & evaluation of ketoconazole emulgel for topical drug delivery.
5. Design & *in vitro* characterization of buccoadhesive orabase of itraconazole using experimental design techniques.
6. Formulation & evaluation of mouth dissolving tablets of loperamide hydrochloride.
7. Formulation, optimization & evaluation of ketorolac trimethamine protransfersome gel for transdermal drug delivery.
8. Formulation, optimization & evaluation of niosomal gel of fluconazole.
9. Development & *in vitro* evaluation of mucoadhesive chitosan microspheres of domperidone for intranasal delivery.

10. Development and characterization of ethosomes bearing losartan potassium for transdermal delivery.
11. Development and characterization of mucoadhesive pluronic lecithin organogel of clotrimazole for topical drug delivery.
12. Mucoadhesive chitosan microspheres for intra nasal administration of rizatriptan benzoate: Design and characterization.
13. Formulation and evaluation of fast dissolving tablet of cefpodoxime proxetil.
14. Development optimization and characterization of prolonged release floating microspheres bearing cefuroxime axetil.
15. Development and characterization of prolonged release formulation of salbutamol sulphate using multivesicular liposome for treatment of status asthmaticus.
16. Development and characterization of ultraflexible lipid vesicles bearing tizanidine hydrochloride for transdermal drug delivery.
17. Development and characterization of swellable controlled porosity osmotic pump tablets of gliclazide.
18. Design and development of pro-niosome based transdermal delivery of ondansetron hydrochloride.
19. Formulation and characterization of amine terminated dendrimers for solubility enhancement of candesartan cilexetil.
20. Development and characterization of dispersible tablets of cefixime trihydrate solid dispersion.
21. Development and *in vitro* evaluation of buccal bioadhesive disc formulation of sumatriptan succinate.
22. Development and characterization of solid self emulsifying system bearing carbamazepine.

23. Formulation, optimization and evaluation of ketorolac tromethamine protransfomosome gel for transdermal drug delivery.
24. Development and characterization of netoricoxib bearing ethosomes for transdermal delivery.
25. Formulation, optimization and characterization of lornoxicam loaded poly-lactide-co-glycolide nanoparticles.
26. Design, characterization and comparison of carbopol 943 p and chitosan mediated mucoadhesive microspheres for intra nasal administration of rizatriptan benzoate.
27. Development and characterization of enteric coated mucoadhesive unidirectional controlled release tablet of cefuroxime axetil.
28. Preparation and optimization of diltiazem hydrochloride transdermal gel for transdermal delivery.
29. Preparation and optimization of mouth dissolving tablet of sumatriptan succinate.
30. Development and characterization of acyclovir loaded solid lipid nanoparticles for topical delivery.
31. Development and optimization of chewable tablet containing promethazine hydrochloride.
32. Development and characterization of isoniazid and rifampicin microspheres for the treatment of tuberculosis.

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

1. Design of buccal bioadhesive tablet of rabeprazole sodium using response surface methodology.
2. Simultaneous estimation of amoxicillin trihydrate & tinidazole in tablet dosage form.

3. Synthesis & characterization of surface modified dendrimers for cancer targeted drug delivery.
4. Synthesis & characterization of chitosan derivative as efficient mucoadhesive agent.
5. Formulation and optimization of megaloporous matrix tablet containing flurbiprofen sodium.
6. Preparation and characterization of solid self emulsifying drug delivery system containing valsartan.
7. Development of pharmacokinetic boosting model of zidovudine for HIV treatment.
8. Design and development of validation protocol and prospective validation of some solid dosage form as antibacterial tablet.
9. Preparation and *in vitro* evaluation of cefpodoxime proxetil floating tablet using various dissolution methods.
10. Design, synthesis and biological evaluation of glycogen synthase kinase-3 inhibitors as antidiabetic agent.
11. *In vitro* and *in vivo* relationship modeling of rosiglitazone maleate.
12. Synthesis, characterization and biological evaluation of some 1, 2, 4 triazole derivatives as antifungal agents.
13. Simultaneous estimation of metformin hydrochloride and sitagliptine in tablet dosage form.
14. Prodrug of simvastatin as cascade latentiated inhibitors of HMG-COA reductase.
15. Synthesis, characterization and biological evaluation of coumarin derivatives as an antimalarial agent.
16. Molecular modeling, design, synthesis and biological evaluation of aldose reductase inhibitors.

17. Molecular modeling, design, synthesis and biological evaluation of some substituted imidazoles derivatives as antifungal agents.
18. Synthesis and characterization of some 1, 3, 4 thiadiazole derivatives as antimicrobial agents.
19. Synthesis, characterization and biological evaluation of thiadiazole derivatives as an antitubercular agent.
20. Simultaneous estimation of aceclofenac and rabeprazole sodium in solid dosage form.
21. Synthesis and biological evaluation of some fluoroquinolone derivatives as antitubercular agent.
22. Design, synthesis and biological evaluation of some new azaaurones derivatives as antimalarial agents.
23. Design, synthesis and biological evaluation of some substituted imidazole derivatives.
24. Design, synthesis and biological evaluation of some N-acetic acid rhodamine derivatives for management of diabetes.
25. Synthesis and biological evaluation of some N-acetic acid thiazolidinedione analogues as aldose reductase inhibitors.

INDUSTRY- INSTITUTIONAL COLLABORATIVE PROJECTS

Institute has developed research collaborations with following industries:

- i. Rini Life Science Pvt Ltd., Indore.
- ii. Harshavardhan Lab., Indore.
- iii. Vamso Biotech Pvt Ltd., Dehradun.
- iv. Kevin Care Pvt. Ltd., Chennai.

- v. M.P. Council of Science and Technology Project (MPCOST).
- vi. Arjuna Natural Extracts Ltd., Kerala.

Provide the following services on demand basis:

1. Analytical solution
2. Validation solution
3. Formulation development and trouble shooting
4. Biological and Microbiological evaluation
5. Various documentations

TITLES OF SOME INDUSTRY SPONSORED RESEARCH PROJECTS

- 1) **Title:** Scientific Validation of Traditional Knowledge of Antidiabetic and Antioxidant Medicinal Plants of Malwa Region.

Sponsored by: MPCOST

Status: Ongoing

- 2) **Title:** Evaluation of Free Radical Scavenging Activity of Some Herbal Formulations.

Sponsored by: Harshvardhan's Lab. Pvt. Ltd.

Status: Successfully completed.

- 3) **Title:** Evaluation of hair- growth activity of polyherbal formulation.

Sponsored by: Kevin Care Pvt. Ltd.

Status: Successfully completed.

- 4) **Title:** Evaluation of hepatoprotective, antioxidant and anti inflammatory efficacy of *Curcuma longa* extract in Wistar rats.

Sponsored by: Arjuna Natural Extracts Ltd.

Status: Successfully completed.

5) **Title:** Evaluation of hepatoprotective, antioxidant and anti inflammatory efficacy of *Phyllanthus niruri* extract in Wistar rats.

Sponsored by: Arjuna Natural Extracts Ltd.

Status: Successfully completed.