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***In-vitro* Assessment of Anti-diabetic Potential of Aerial Parts of Some Medicinal Plants**

*Mr. Rahul N. Patil¹, Dr. Rameshwar S. Rathod², Mr. Vikas D. Kedar³,
 Mr. Hemant V. Raut⁴, Ms. Snehal R. Somvanshi⁵*

*Assistant Professor, Department of Pharmacology, MET's Institute of D.Pharmacy, Adgaon, Nashik^{1,4}
 Assistant Professor, Department of Pharmacy Practice, MGV's Pharmacy College, Panchavati, Nashik²
 Assistant Professor, Department of Pharmaceutics, Matoshri College of Pharmacy,
 Eklahare, Nashik³
 Research Scholar, Department of Pharm.Technology, R.C. Patel Institute of
 Pharmaceutical Education and Research, Shirpur, Dhule⁵*

Corresponding Author:- Mr. Rahul N. Patil^{1*}

Email Id: serviceheb@gmail.com


ABSTRACT

Background: Diabetes mellitus is very common metabolic disorder which affects the human population throughout the world, characterized by hyperglycaemia and arises due to defects in insulin secretion, insulin action or both. Despite of numerous therapeutic options, Diabetes mellitus remains associated with high rate. Traditional herbal medicine has been found effective with minimal or no side effect.

Materials and Methods: The aerial parts of *Momordica charantia*, *Embilica officinalis*, *Trigonella Foenum-graecum*, *Murraya koenigii*, *Azadirachta indica*, *Allivum sativum* contains charantin, vicine, polypeptide-P, triterpenoids which posses Anti-diabetic potential. Extraction of the plant material was done to obtain extract and further proceed for physical characterization and phytochemical analysis. TLC was done to confirm the active constituents present in polyherbals with reference to standard. The extract obtained from various extraction process is mixed in together in equal quantity to prepare polyherbal extract and assessed against enzyme alpha amylase and alpha glucosidase for inhibition.

Results and Conclusion: The % yield of the extract was found to be 69.2, 72.8, 58.8. The TLC has identified the flavonoids and triterpenoids named Charantin, Picine and Polypeptide-p in the polyherbal extract 1 and 2. The R_f value of polyherbal extracts was found to be 0.78 and 0.76 which matches with the standard and hence presence of Charantin, Vicine and Polypeptide-p was confirmed. The dose dependent study and statistical comparison with the help of graph pad prism, version 9.03 by one way ANOVA followed by dunnett's multiple comparison test has revealed that significant inhibition ($p \leq 0.05$) is observed in alpha amylase and glucosidase enzyme treated with Polyherbal extract 1 and 2 when compared with standard Acarbose and hence the Anti-diabetic potential potential of Polyherbal extracts is justified.

Keywords: Diabetes mellitus, Polyherbal extract, Anti-diabetic, Alpha amylase, Alpha Glucosidase.

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