Metformin hydrochloride originally sold as Glucophage is an oral anti-diabetic drug in the biguanide class. It is the first-line drug of choice for the treatment of type-II diabetes. Rapid drug development is required for the curing diabetes. An innovative analytical method of High Performance Liquid Chromatography (HPLC) has been used to establish the presence of Metformin hydrochloride in the twelve test samples from non-conventional sources (coded as ST-1 to ST-12). The findings reveal that Withania coagulens-Seed, Tinospora cordifolia-Stem, Azadirachta indica-Leaf, Azadirachta indica-Stem, Murraya koenigii-Leaf, and Glycine max-Seed show anti-hyperglycemic activity due to the probable presence of Metformin hydrochloride which might be their active principle. The results shown by ST-1, ST-4 and ST-5 are quite encouraging as 57.79%, 69.90%, and 58.37% of Metformin hydrochloride respectively, prove that these test samples may be analyzed in detail further. There is no doubt, if the process of drug development is achieved for Withania coagulens-Seed, Tinospora cordifolia-Stem, Azadirachta indica-Leaf, a new therapy for diabetes from non-conventional sources will be established. ST-6 reflected 34.71% Metformin hydrochloride whereas ST-8, ST-9, and ST-10 showed 40.67%, 43.88%, and 37.67% of the same compound respectively. These findings confirm the probable presence of Metformin hydrochloride in Azadirachta indica-Stem, Murraya koenigii-Leaf, and both the species of Glycine max-Seeds. So far other time-taking processes like Thin Layer Chromatography etc. were being used for this purpose. This process is fast, more accurate and very minute quantities of the sample are required. With a very limited sample quantity and sample concentration, HPLC offers the best solution for the analysis. The method will be useful in creating extensive databases of active components of the various plant species. By using these chemical databases better drug design can be achieved for the treatment of diabetes. Chemi-informatic exercises have been demonstrated as a proof of concept for the same.

Biography

Shipra Roy is Ph.D. from University of Allahabad, Allahabad, India in 1986 at the age of 27 years. She is Assistant Professor at Sarojini Naidu Government girls Postgraduate Autonomous College, Bhopal, India. She has one United States Patent and four Indian Patents in her name. Two new Patent applications have been filed in Indian Patent Office. Her field of research is Green Chemistry.

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