Brief Information about the Research (250 Words)

It is the first report of fermentative biotransformation of a composite herbal extract containing *Syzygium cumini* seed; *Momordica charantia* fruits, *Mangifera indica* seed kernel, *Gymnema sylvestre* leaves. The biotransformation was monitored by kinetics study. In vivo safety was ensured by acute toxicity studies followed by preparation and evaluation of nanosuspension. Antidiabetic activity was evaluated at 2 dose levels to ensure efficacy and dose optimization. The antidiabetic effect was substantiated through histopathological examination of pancreas, kidney, Liver.

Benefit to Industry –

a) Green process- The process uses aqueous medium, avoiding the use of hazardous chemicals, making the process environment friendly.

b) Time saving- The chemical change affected by the biotransformation is time saving in comparison to the process if done with chemical catalysts.

c) Cost effective- Reduced use of chemicals makes the process cost effective. The active raw materials are waste byproducts generated in food industry.

d) Simple process- The process is a simple 2 step process, which includes one biotransformation and one formulation step.

Benefit to Society

a) This process uses biodegradable waste materials which will help in waste management.

b) Environment friendly process will reduce the burden on our ecosystem.

c) The potentiation of herbal actives will make use of herbal alternatives more prevalent, enhancing the life quality of diabetic patients.

Developed Formulation or Product / Device

a) Biotransformed polyherbal formulation has been developed as an alternative for synthetic Antihyperglycemics.

b) Safety and acceptability of herbal formulations are better than synthetic formulations.

c) The potentiation of herbal based formulation can fill the gap between herbal based and synthetic medicine.

Potential for Commercialization

a) The product can be easily commercialized as all the raw material and microbial stain are commercially viable. The process of biotransformation is anaerobic which will require minimum maintenance in comparison to aerobic process.

b) Formulation process is also simple, involving minimum number of ingredients.

Further formulation

Any Other Information

The work deals with fermentative enhancement of antidiabetic activity of polyherbal combination and developing it into a nanosuspension for easy use by patients.

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