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### FORMULATION AND INVESTIGATION OF CHURNAM FORMULATION

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#### ABSTRACT

Diabetes Mellitus also called as Diabetes which is the most life threatening disease in the world. It shows that the pancreas contains little or no insulin of reduced insulin secretion and insensitive of the insulin reuptake within the body. The anti diabetic effect produced by using herbal medicine are seen in mechanism. The formulation of ayurvedic churna is prepared and analyses the two doses of antidiabetic activity profile and undergoes marketing after preparing anti diabetic herbal medicines. The polyherbal churna was prepared using various herbs like Commifera, Sida cordifolia etc. that are already proven for the antidiabetic activity. This formulation was investigated for the antidiabetic activity at two doses and was compared with a marketed formulation and also a standard synthetic drug in STZ induced DM method.

**Key Words:** Churnam, Formulation study, Commifera, Sida.

#### INTRODUCTION

The Diabetes Mellitus also called as Diabetes which is the most life threatening disease in the world. It shows that the pancreas contains little or no insulin of reduced insulin secretion and insensitive of the insulin reuptake within the body. Therefore, the blood delivers the glucose to the body to form other daily activities. 50% of population in the world are affected by diabetes and produce adverse effects and also mostly seen in obese and elderly patients. It may affects the nerve related diseases like neuropathy and nephropathy, CVD and stroke.

The diabetes is mostly caused by food related habits like fatty carbohydrates, sugar, and fibre Loss and may affect the lifestyle of the person. Diabetes is treated by the synthetic drugs, but it cannot be cured permanently. In this present study, Various methods are involved for the treatment of diabetes mellitus to monitor the drugs antidiabetic effect such as alloxan, streptozotocin. The herbal medicine shows better effect when compared to synthetic drugs used in the DM. The

herbal medicines are safe to use in DM and extraction of chemicals from the herbs maintains the normal levels of DM are estimated than the synthetic drugs. The anti diabetic effect produced by using herbal medicine are seen in mechanism. The formulation of ayurvedic churna is prepared and analyses the two doses of antidiabetic activity profile and undergoes marketing after preparing anti diabetic herbal medicines.

#### PREPARATION OF THE CHURNA

##### Preparation of Herbal material

The plant material as per table 1 was collected and duly authenticated. The herbaria of the specimens collected were deposited in the college for future reference. The plant material was appropriately dried for five days under the shade and in the ambient temperature and humidity in March [7]. The dried crude drug material was then finely powdered using a blender and then sieved to achieve a fine powder which is even in size and freely flowing. This powder was stored in an airtight container and is used directly in the experiments to investigate the antidiabetic activity.

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### Lab animals

For the experiments, the animals used are of albino Wistar strain of rats which weighed about 170-185gm in weight. They are all around 3months of the age or prime. They are of both the genders and displayed no signs of abnormal behaviour, and they are healthy. They are kept in the air and humid controlled climate. They have placed in their cages and are given free access to the water and food pellets.

### Diabetes induction

Diabetes in the laboratory animals was induced by STZ (Streptozotocin). This was mixed in the 4.5 pH solution of citrate buffer and the dose equivalent to the 45mg of the drug was injected in the IP route. The rats were gone into the initial hypoglycemic state, and immediately 25% glucose solution was administered to the rats, and they recovered. With a single shot of the drug the diabetes was induced to the rats and the blood glucose level was raised to more than 240mg/dL of blood, and those animals were selected for the study [8,9,10].

### Animals test Groups

The animals divided into 6 batches which are randomly separated based on the weights and both the sexes of animals were placed in the groups. Each group had about five animals [11].

Group A received a normal saline solution of 1.4ml in a kg of the rat, which had a concentration of 0.9% weight to volume in distilled water. Group B received the diabetes induction agent, and this group also received just the normal saline solution as above.

Group C received the diabetes induction and the standard marketed ayurvedic churna formulation at a dose that is prescribed in the directions of the bottle.

Group D and E received the induction agent and also the prepared formulation powder at the dose of 100mg/kg and

200mg/kg of the bodyweight of the rats. The formulation was dissolved in the distilled water to make the concentration of 100mg/ml, and the solution was directly ingested into the rat mouth using a syringe. After this 2ml of distilled water is given to the rats and are allowed to have drinking water in the cages.

Group F received the induction agent and also a standard drug pioglitazone at a dose of 2mg/kg of the drug in the oral route.

The prepared churna formulation was investigated for about 28 days, and the blood sample was withdrawn once in every week. The blood was tested for glucose levels. The testing was done using the ace sugar check strips coupled with a digital glucometer.

### RESULTS & DISCUSSION

The induction of diabetes was successful with STZ administration. There was a significant elevation of the blood sugar level in the rats with the administration of the drug. An instant spike in the blood sugar was noticed. The rats were given with the marketed formulation of the churna, and it was able to control diabetes effectively at the standard dose as per label claim.

The groups that were administered with the prepared churna at two doses 100 and 200 mg/kg are were noticed a significant lowering of the blood sugar level in the rats. The formulation at a higher dose showed a significant lowering of the blood sugar level. The standard drug also showed a better activity but not as much as the prepared churna. The experiments were continued to 28 days where the blood sugars were normalized towards the end of the investigation. This might be due to the presence of varied chemical constituents that are present in the churna and also the antioxidant activity of the herbs that are used to prepare the churna formulation.

**Table 1: Preparation of the Churnam Formulation**

S.No.	Ingredients	Quantity
1	<i>Commifera mukul</i>	50mg
2	<i>Sida cordifolia</i>	50mg
3	<i>Phyllanthus emblica</i>	50mg
4	<i>Terminalia chebula</i>	50mg
5	<i>Withania somnifera</i>	50mg
6	<i>Ocimum sanctum</i>	50mg
7	<i>Tinospora cordifolia</i>	25mg
8	<i>Piper longum</i>	10mg
9	<i>Tribulus terrestris</i>	10mg
10	<i>Glycyrrhiza glabra</i>	25mg

**Table 2: Effect of the prepared churna on the blood sugar levels of rats**

Groups	Blood sugar level (mg/dl)				
	0 <sup>th</sup> day	1 <sup>st</sup> week	2 <sup>nd</sup> week	3 <sup>rd</sup> week	4 <sup>th</sup> week
Normal saline	105.13±5.845	111.32±6.78	109.25±3.517	103.47±1.021	101.76±2.102
DM induced group	326±6.363	328.69±5.834	325.38 ±6.782	317.75±6.247	319.23±8.915
Marketed churna	332.97±6.742	287.43±7.356	263.52±5.890	194.86±5.9	140.01±6.74
Prepared churna 100mg/kg	331.24±7.248	272.05±5.912	240±6.721	179±4.670	121.42±5.823
Prepared churna 200mg/kg	326.35±6.991	263.21±0.259	222±2.285	165±7.812	104.8±7.296
Synthetic standard	323.62±5.654	290.8±6.468	275.79±5.463	204.58±4.922	135.65±6.157

**CONCLUSION**

The polyherbal churna was prepared using various herbs like Commifera, Sida cordifolia etc. that are already proven for the antidiabetic activity. This formulation was investigated for the antidiabetic activity at two doses and was compared with a marketed formulation and also a standard synthetic drug in STZ induced DM method. The prepared churna formulation showed a better activity compared with the standard and the marketed churna. The prepared churna at 200mg dose showed better activity than the 100mg dose.

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**CONFLICT OF INTEREST**

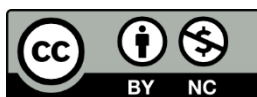
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