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# Hypoglycemic studies with methanol extract of *Trigonella foenum- graecum* L,*Centratherum anthelminticum* L.and *Holarrhena antidysenterica* L.seeds in Swiss Albino mice

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**Abstract:** Trigonella foenum- graecum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L seeds are common species all through Bangladesh , India and Srilanka, Pakistan and Asia were tried to assess its impact on blood glucose level on Swiss Pale skinned person mice show .Combined detailing (polyharbal) of the methanol extricate of Trigonella foenum-graecum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L.seeds were inspected in diminished glucose level of blood.In the test combined definition of the methanol extricate of Trigonella foenum-graecum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L.seeds were examined by verbal glucose resistance test (OGTT) on decreasing the glucose concentration level of blood 30 mice ,overnight starved (Male: Female=4: 1) were taken and isolated into five bunches. They were managed glucose by gavaging (Bunch -control ),10 mg/kg body weight of a standard medicate Glibenclamide (Gather Standard) .Measurements 100,200,400 mg/kg body weight of combined definition of the methanol extricate of Trigonella foenum- graecum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L (1: 1: 1ratio) were gavaged in group-3,Group-4 and Group-5 individually, taken after by organization of glucose (2 gm/kg body weight ) after 60 minutes . Blood glucose level were analyzed at 120 minutes after glucose organization by glucometric strategy. Its illustrates combined definition of the methanol extricate of Trigonella foenum- graceum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L.seeds has critical oral hypoglycemic action. The result were both dosages subordinate as well as statically critical.

**Keywords:** Polyharbal, Blood Glucose, Diabetes Mellitus, Gavaging Tube, Glucometer.

## 1. INTRODUCTION

Diabetes mellitus could be a unremitting Progressissve metabolic clutter characterized by hyperglycemia basically due to outright or relative insufficiency of affront hormone .(WHO;1999). Indications of tall blood sugar incorporate visit urination ,expanded thirst and expanded starvation .In case cleared out untreated diabetes can cause numerous complication (Retrived 25 walk 2014).Diabetes is Related with complication such as cardiovascular illness , Nephropathy, and neuropathy which can lead to constant morbidity and mortality. (American Diabetes Affiliation). Within the South Asian locale Bangladesh has the moment Biggest number of Grown-ups with Diabetes (5.1 million adult, 6.31%). By 2035 the number of influenced individuals is anticipated to extend to 592 million universally (IDA)

There is no known preventive degree for type-1 Diabetes, Sort -2 diabetes which accounts for 85-90% of all cases can frequently be anticipated or deferred by mining a typical body weight locks in in physical action and devouring a sound slim down. Primarily there are two sort of diabetes mellitus, Type-1 or affront subordinate diabetes mellitus that result in immune system devastation of affront creating beta cells of pancreas. Sort 2 diabetes mellitus or affront non-dependent diabetes mellitus -metabolic clutter that's characterized by tall blood glucose within the setting of affront resistance and relative affront lack. Another sort gestational diabetes mellitus amid final trimester of pregnancy in female. Diverse Calculate can trigger hyperglycemia are diabetes ,stretch ,eating as well much carbohydrate in feast ,need of work out etc.

Hypoglycemia implies moo blood glucose level .It could be a serious condition since glucose source of vitality for the brain. Need of glucose, like need of oxygen produces brain harm or indeed passing in case the shortfall its delayed. The blood glucose levels in sound people change depending incredibly on the length of fasting . The ordinary extend is 70 to 120 mg/dl after an overnight (12 hours) quick (Cryer.et al.; 2003).

## 2. Materials & methods

### 2.1 Materials of Plants:

Plant materials: poly herbal formulation (Centratherum anthelminticum + Holarrhena antidysenterica+ Trigonella foenum-graecum) was selected as the experimental plant material. Ratio:



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Trigonella foenum-graecum: Centratherum anthelminticum: Holarrhena antidysenterica =1:1:1

**2.2 Preparation of powder:**

Trigonella foenum-graecum L. seed , Centratherum anthelminticum L And Holarrhena antidysenterica L. Seed were collected from local market of Dhaka.Then Were taken and dried in direct sunlight .Then the dried seed of Trigonella foenum-graecum L. , Centratherum anthelminticum L and Holarrhena antidysenterica L. Seed were grind using a kitchen blender to make powder abd preserved in an air tight container at room temperature until extraction.

**2.3 Method of Extraction:**

Extraction method of Trigonella foenum-graecum L., Centratherum anthelminticum L And Holarrhena antidysenterica L. polar (MeOH) dissolvable. After mixing of the Trigonella foenum-graecum L., Centratherum anthelminticum L and Holarrhena antidysenterica L. they were powder like. Advance channel the powder was taken out for extraction. Mesured the dried powder of Trigonella foenum-graecum L., Centratherum anthelminticum L And Holarrhena antidysenterica L. by advanced adjust and took 150 gm powder. we have taken a measuring utencil and poured out with methanol as per account as 5: 1 i.e. 500 ml for 100 gm powder. Mixed gradually with glass bar or any stainless steel bar to blend. Proceeded blending after a couple of minutes and kept up it for one hours and secured up the measuring utencils with aluminum thwart. Cleared out the framework for overnight for 48 hours. Sifted the dissolvable with lean cotton cloth (white color ) and took the extricate to the water shower at that point hold up till we got dried extricate (rough sedate). 7 gm extraction was found after 7 days of vanishing where the temperature was continuously kept up at 40 C and at last it was collected by spatula in a showcase glass vial. The extricated buildups were kept in plastic containers and the vial contain extricating kept in fridge at temperature of 4-8 c.

**2.4. A. Experimental creatures:**

30 swiss albino mice were collected from animal resourse Branch of ICDDR'B Mohakhali Dhaka, The Mice were stored in steel cage (10 mice/cage) and given corn and normal water. During experiment they were labeled on their tail for Identification using red ,black and tube colored permanent markers. The Animals were selected according to their body weight so that the average body weight of all the groups remains approximately same.

**2.5. B. Experimental plan:**

At First 30 adult mice (male :female =4:1) were taken ,divided into 5 groups (5 mice/group) and named control, Standard ,Group-3,Group-4,Group-5.Then 0.4 gm of the Trigonella foenum-graecum L. , Centratherum anthelminticum L and Holarrhena antidysenterica L methanol extract was taken in two different vials and dissolved in DMSO (net volume 1 ml for each suspension )and 10 gm glucose was dissolved in distilled water ( net volume 10 ml) in a beaker .Mean while a 5 gm tablet of Glibenclamide was taken in vial and dissolved in DMSO ( net volume 1 ml) .After overnight fasting , at first mice from standard group was administered Glibenclamide at a dose of 10 mg /kg body weight by gavaging . Then mice from group-3 ( Low dose ) and Group -4 (medium dose) were administered the combined formulation of the methanol extract of Trigonella foenum-graecum L., Centratherum anthelminticum L and Holarrhena antidysenterica L at a dose of 100 mg/kg, 200 mg/kg and 400 mg/kg body weight respectively .After one hour all the mice including the control group were administered glucose by gavaging at a dose of 2 mg/kg body weight . After 120 minutes of glucose gavaging all the mice were subjected to blood collection by punching their tail by sacrifice them and glucose level analysis by glucometer and reading of the glucometer was taken in mmol/L to measure the blood glucose level.

**Statistical Data Evaluation:**

The statistical analysis have been performed with the following software programs: Excel 2013 and IBM SPSS 18.

## 3. Result and Discussion:

Table 1. A pharmacological study on anti-diabetic effect of poly herbal (Centratherum anthelminticum + *Holarrhena antidysenterica*+ *trigonella foenum-graecum*) methonolic extract in Swiss Albino mice

| Serial | Control (Glucose 2g/kg) | Standard (Glibenclamide 10mg/kg) | Group-1 ***poly*** extract 100 mg/kg | Group-2 *poly* extract 200 mg/kg | Group-3 *poly* 400 mg/kg |
|---|---|---|---|---|---|
| .0 | | | | | |
| 1 | 6.1 | 3.4 | 5.4 | 4.1 | 3.9 |
| 2 | 5.7 | 2.8 | 4.6 | 4.2 | 3.9 |
| 3 | 5.5 | 3.2 | 5.3 | 4 | 3.9 |
| 4 | 5.9 | 3.1 | 4.8 | 4 | 3.8 |
| 5 | 5.5 | 3.2 | 4.3 | 4.3 | 4 |
| Sum | 28.7 | 15.7 | 24.4 | 20.6 | 19.5 |

| | | | | | |
|---|---|---|---|---|---|
| Mean | 5.74 | 3.14 | 4.88 | 4.12 | 3.9 |
| SD | 0.2608 | 0.2191 | 0.465833 | 0.130384 | 0.070711 |
| | | | | | |
| SE | 0.1219 | 0.098 | 0.208327 | 0.05831 | 0.031623 |
| T-value | | 17.070 | 3.602144 | 12.42483 | 15.22795 |
| P-value | | 0.0005 | 0.005 | 0.0005 | 0.0005 |
| Effective level | | 0.05% | 0.05% | 0.05% | 0.05% |
| 5% Effective Level | | Effective | Effective | Effective | Effective |

From the think about of investigate glucometric investigation of glucose levels after 120 minutes of glucose gavaging ,the control cruel was found 5.74 mmol/l and the Glibenclamide treated test cruel was found 3.14 mmol/l .On the other hand the Trigonella foenum- graceum L,Centratherum anthelminticum L.and Holarrhena antidysenterica L. MeOH extricate of moo measurements (100 mg/kg) treated cruel esteem was found 4.88 mmol/l,medium dosage (200 mg/kg) treated cruel esteem was found 4.12 mmol/l and tall measurements (400 mg/kg) treated esteem was found 3.9 mmol/l .Comparing with control cruel esteem all the given dosage essentially diminished the blood sugar level .Ready to see that compare with standard most noteworthy hypoglycemic action appear within the group-3 which was measurements 400 mg/kg ,where treated cruel esteem was 3.9 mmol/l which is comparable to that of the standard drugs (3.5).

## 4. Discussion:

From our logical ponder we have discover out that the definition containing Trigonella foenum- graceum L,Centratherum anthelminticum L. and Hollarrhena antidysenterica L.. seeds have hypoglycemic action at distinctive measurements and combined definition of the methanol extricate of Trigonella foenum- graceum L,Centratherum anthelminticum L. and Hollarrhena antidysenterica L.seeds posseses synergistic verbal hypoglycemic action .We will conclude that Trigonella foenum-graceum L, Centratherum anthelminticum L. and Hollarrhena antidysenterica L.seeds are accessible in Bangladesh and have a few want chemical substances or potential particles that affirm its hypoglycemic exercises . Arranged and development and appropriate logical examination of pharmacological property of these plants are beyond any doubt to create a expansive assortment of modern sedate and pharmacological crude materials of nature root .Hence the inborn Trigonella foenum- graceum L, Centratherum anthelminticum L. and Hollarrhena antidysenterica L.. seeds guarantees to be an awfully great source of modern medicate and pharmacological crude materials in our nation .

## 5. Conclusion:

The results propose that methanolic extract of Trigonella foenum-graecum L. , Centratherum anthelminticum L and Holarrhena antidysenterica L can be used for decreasing of blood glucose.

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