







# Can Clovinol (clove extract) lower blood sugar levels after meals in healthy volunteers?

<b>Submission date</b> 21/09/2018	<b>Recruitment status</b> No longer recruiting	 Retrospectively registered
<b>Registration date</b> 28/09/2018	<b>Overall study status</b> Completed	 Protocol not yet added
<b>Last Edited</b> 09/05/2019	<b>Condition category</b> Nutritional, Metabolic, Endocrine	 SAP not yet added
		 Results added
		 Raw data not yet added
		 Study completed

## Plain English Summary

### Background and study aims

The main energy source the body uses is sugar (i.e. glucose), which is derived from the food we eat. The amount of sugar in our blood (i.e. blood glucose levels) is an important indicator of overall health. Both too much sugar (hyperglycemia) and too little sugar (hypoglycemia) in the blood is linked with negative effects on health. Fasting blood sugar is measured when someone has not eaten or drunk anything (except water) for at least 8 hours. Normal fasting blood sugar levels should be below 100 mg/dL. Prediabetes is characterized by fasting blood sugar levels between 100 to 125 mg/dL, and diabetes is when fasting blood sugar is greater than 125 mg/dL. When we eat, our blood sugar increases, and then within 2 to 3 hours blood sugar should return to the level it was before a meal. The amount of sugar in our blood after we eat is called the postprandial blood sugar level. This measurement of blood sugar is also an important indicator of overall health and can be an early sign of abnormal blood sugar control. Previous studies have identified that clove extract can play a role in helping to manage blood glucose levels. The main objective of this study is to test whether a specialized extract of clove bud, Clovinol®, can help control postprandial blood sugar.

### Who can participate?

Individuals who are between 25 and 35 years old, not taking any medication, not obese, and have preprandial (before eating) blood sugar levels below 125 mg/dL.

### What does the study involve?

Participants will need to maintain their typical South Indian diet and complete their breakfast by 8 am, eat lunch at 12 pm, and take a Clovinol® capsule immediately after lunch throughout this 30-day study. Between breakfast and lunch, participants should have no snacks or drinks (except water). On specified days of the study, blood sugar will be measured using a digital glucometer immediately before lunch and 2 hours after the start of their lunch.

### What are the possible benefits and risks of participating?

Potential benefits include reductions in blood glucose after a meal, which can possibly reduce post-meal fatigue. Potential side effects are limited, but may include mild stomach discomfort.

Where is the study run, and who is funding the study?

This study is funded by and will be conducted at the R&D Center of Akay Flavours & Aromatics Ltd. in Kerala, India.

When is the study starting and how long is it expected to run for?

The study is expected to start in September of 2014 and continue for 30 days.

Who is the main contact?

The main contact is Dr. Krishnakumar IM, [Krishnakumar.im@akay-group.com](mailto:Krishnakumar.im@akay-group.com).

## Contact information

### Type(s)

Public

### Contact name

Dr IM Krishnakumar

### ORCID ID

<http://orcid.org/0000-0003-0594-7650>

### Contact details

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## Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Protocol/serial number

AKCN-CLS\_01/14

## Study information

### Scientific Title

Effects of Clovinol on random blood sugar in healthy and pre-diabetic adults - an open-label pilot study

### Study hypothesis

Type 2 diabetes (T2D) is a global pandemic, and contributes significantly to the increasing incidence of other conditions such as cardiovascular disease. While diabetes screening typically relies on assessment of fasting blood glucose, this may not detect subtle early manifestations of abnormal glucose metabolism. One such early manifestation is impaired glucose tolerance which

can precede T2D by many years and is a risk factor for all-cause mortality. Postprandial plasma glucose measured 2 hours after the start of a meal is a good indicator of the overall status of glucose metabolism. Clove (*Syzygium aromaticum* L.) and its essential oils (eugenol and acetyl eugenol) have been shown in preclinical studies to modulate pathways involved in glucose metabolism. The objective of this pilot study is to test whether Clovinol could influence glucose metabolism. We will evaluate the effect of Clovinol® supplementation on preprandial glucose levels and 2-h PPG levels in otherwise healthy volunteers who have preprandial glucose levels less than 125 mg/dL. This study will test the hypothesis that daily supplementation with Clovinol will reduce pre- and post-prandial blood glucose by 5 and 40 mg/dL, respectively.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Sri Rama Hospital ethics committee, 08/08/2014, ECR/184/Indt/KA /2014

### **Study design**

Single-center open-label interventional pilot study

### **Primary study design**

Interventional

### **Secondary study design**

Non randomised study

### **Study setting(s)**

Home

### **Study type(s)**

Prevention

### **Participant information sheet**

No participant information sheet available

### **Condition**

Prediabetes

### **Interventions**

250 mg Clovinol, a hydroethanolic water-soluble extract of unopened clove bud (*Syzygium aromaticum* L.), administered in one gelatin capsule once daily immediately after lunch for 30 days

### **Intervention Type**

Supplement

### **Primary outcome measure**

Blood glucose measured with a digital glucometer 2 hours after lunch (post-prandial) measured on days 1, 12, 24 and 30. Day 1 is without Clovinol.

### **Secondary outcome measures**

Blood glucose measured with a digital glucometer immediately before lunch (pre-prandial) measured on days 1, 12, 24 and 30. Day 1 is without Clovinol.

**Overall study start date**

24/03/2014

**Overall study end date**

23/10/2014

## **Eligibility**

**Participant inclusion criteria**

1. Healthy
2. Non-obese
3. Aged 25 - 35 years
4. Blood glucose below 125 mg/dL

**Participant type(s)**

Healthy volunteer

**Age group**

Adult

**Sex**

Both

**Target number of participants**

At least ten subjects shall be included in this open label pilot study

**Total final enrolment**

13

**Participant exclusion criteria**

1. Take any medication
2. Obese
3. Have diabetes

**Recruitment start date**

05/09/2014

**Recruitment end date**

20/09/2014

## **Locations**

**Countries of recruitment**

India

**Study participating centre**  
**R&D Center, Akay Flavours & Aromatics Pvt Ltd**  
Ambunadu, Malaidamthirith P O  
Ernakulum  
India  
683561

## **Sponsor information**

### **Organisation**

Akay Flavours & Aromatics Pvt. Ltd.

### **Sponsor details**

Malaidamthuruthu P. O., Ernakulam  
Cochin  
India  
683561

### **Sponsor type**

Industry

## **Funder(s)**

### **Funder type**

Not defined

### **Funder Name**

Investigator initiated and funded

## **Results and Publications**

### **Publication and dissemination plan**

#### **Intention to publish date**

31/12/2018

#### **Individual participant data (IPD) sharing plan**

The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication

#### **IPD sharing plan summary**

Data sharing statement to be made available at a later date

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	07/05/2019	09/05/2019	Yes	No