

Effect of seaweed (*Ecklonia cava* extract) on
Postprandial blood glucose and insulin level on pre-
diabetic patients: A double-blind randomized-controlled
trial

(SW2020)

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INFORMED CONSENT FOR MEDICAL & CLINICAL STUDIES
KSU-IRB Form 005-E
King Saud University, Riyadh, Kingdom of Saudi Arabia

SECTION A:

STUDY INFORMATION

Study Title:	Effect of seaweed (Ecklonia cava extract) on blood glucose and insulin level on pre-diabetic patients: A double-blind randomized-controlled trial
Protocol Number/Study Code:	SW2020
Principal Investigator:	Malik Almutairi
Principal Investigator Address:	24 clinical nutrition, community of health science department, college of applied health science, king Saud University, 1144 first floor.
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Email:	439106246@student.ksu.edu.sa
Sponsor/Non-Commercial Funding/NA:	post graduate student funding / King Saud University

INTRODUCTION

Dear Participant,

You are being invited to take part voluntarily in the *clinic at Clinical Trial Unit (CTU) at King Khalid Hospital in Riyadh in the Kingdom of Saudi Arabia* above-mentioned research study. A member of the research team will explain what is involved in this study and how it will affect you. Prior to signing this form, please read carefully all the study aspects to make an informed decision. This consent form describes the study procedures, the risks and benefits of participation, and how your confidentiality will be maintained. Please take your time to ask questions and feel comfortable making a decision whether to participate or not. This process is called informed consent. If you decide to participate in this study, you will be asked to sign this form and will be given a copy for your records. Throughout the course of this study, you will have the right to ask any questions regarding the study or your medical condition. As a part of the consenting process, we will keep you updated with any new findings that might affect your decision to continue with the trial.

SECTION B:

1. WHAT IS THE PURPOSE OF THE STUDY?

WHY IS THIS STUDY BEING DONE?

Type 2 diabetes mellitus (T2DM) is a health condition that is commonly caused by either insufficient insulin secretion or insulin resistance. T2DM affects hundreds of millions of people worldwide, and this number is rapidly increasing in most parts of the world. Consistent Blood sugar raise right after carbohydrate consumption is a common sign of T2DM and prediabetes, caused by the inability of the body to effectively use insulin (hormone that reduces blood sugar in order to keep it in normal range). However, researchers have found that Brown seaweed (herbs taken from seas) contain a product called polyphenolic extracts which have been proposed to have an inhibition effect on digestive enzymes (α -amylases and α -glucosidases) thus improving diabetic related response. α -amylase and α -glucosidase are carbohydrates digestive enzymes that are capable of breaking down carbs into simple sugars. Inhibition of these enzymes (after carb consumption) may help in reducing blood sugar to near normal level. This could give us an indication to help people with prediabetes as well as people with type 2 diabetes mellitus to improve their condition.

Knowing the appropriate dose of brown seaweed will help to understand its effectiveness more clearly on blood sugar and insulin level. Thus, this is a research study aiming to investigate the acute effect of seaweed extract on blood sugar and insulin level after carb consumption.

2. HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

The total number expected to participate in this study is 30 participants.

3. STUDY LOCATION?

At the clinics 352, 254 at Clinical Trial Unit (CTU) at king Khalid hospital / Riyadh / the Kingdom of Saudi Arabia.

4. WHAT WILL HAPPEN IF I TAKE PART IN THIS STUDY?

This will be a randomization-controlled study where participants will be randomly assigned to either supplement or placebo group. The sequence that the participants receive their supplements as either study testing intervention (E. cava extract) or placebo will be determined using computer-generating randomization.

Participants will be asked to attend the location of the study in clinical nutrition department at king Khalid Hospital in Riyadh only twice as follows:

4.1. During the course of this study, you will go through the following visits/ procedures.

1. Screening visit.
2. Study procedure visits.

4.2. Baseline visit or/ Screening procedures:

If you agree to participate in this study, you will be requested to sign and date Informed Consent Form. At this visit you are required to attend the diet clinic at clinical nutrition department in king Khalid Hospital in Riyadh to perform blood sugar testing using finger prick to know if you are eligible to participate or not

4.3. Study Procedures/Treatment period:

On arrival at the diet clinic you will be invited to complete the following tasks:

two fasting (>10 hours) blood samples will be taken at -45 and -35 minute to determine fasting blood glucose and insulin level. At a time of -30 minute, either study test (E. cava extract) or placebo will be administered to participants based on randomization order. Then, at time 0, participants will consume 110 g white bread, that contains **approximately 75 g of carbohydrates**. Blood samples will be collected in accordance with standard oral glucose tolerance test protocol (OGTT) for the following 2 hours at an interval of 30, 60, 90, 120 minutes for blood glucose and at intervals of 30, 60, 90, 120 minutes for insulin level. these measurements will be taken while waiting for blood sample taking:

1. A special questionnaire on dietary intake (asking about yesterday food intake) called 24-hours recall.
2. Seven Blood samples using finger prick procedure for blood sugar measurement
3. Four times of blood collection for measurement of insulin level using medical syringe.
4. Completion of the end of study questionnaire if there is any side effect like headache, bloating, or diarrhea. You will be asked to send your questionnaire answer 24 hours after you leave us.

5. HOW LONG WILL I BE IN THE STUDY?

If you agree to take part in this study, your involvement will last approximately one day. You will be asked to visit the diet clinic *only one time*. Each clinic visit will take approximately *3 hours*.

6. WHAT IS EXPECTED OF ME DURING THE STUDY? WHAT ARE MY RESPONSIBILITIES?

Your participation in this study is totally voluntary, and you will always have the right to withdraw at any time without mentioning the reasons and without affecting your healthcare benefits or your relationship with the study staff. Signing this informed consent form does not mean that you waive your legal rights, yet you will still have the following responsibilities:

- i) Read the informed consent form and seek understanding of the study.
- ii) Ask questions and understand your rights.
- iii) Follow carefully all directions pertaining tests and procedures, and appear for the study visit as scheduled i.e. Be on time for the clinic, and if you have any circumstances that prevent you from being on time please inform your study staff.

- iv) Inform your family physician or the emergency room physician that you are participating in this study
- v) Promptly report any apparent/potential adverse drug reaction to the study staff.
- vi) In case your family physician has to prescribe a new medication to you, please inform him / her that you are participating in this study. Consult the study investigator about this new medication.
- vii) If applicable, please ensure completing all questionnaires.

7. CAN I STOP BEING IN THE STUDY?

You can decide to stop taking part in the study at any time. If you decided not to take part in this study, you will be receiving the utmost standard of care utilized at our site to treat similar conditions. Please inform the doctor/study investigator about your decision of stopping your study participation. Your doctor will guide you how to stop the study, if there are any rules and guidelines, for your safety, with the alternate treatment for you or physician taking charge for your illness treatment. No one will try or coerce you to continue the participation.

Once you are off the study you will be allowed to take part in this study again. If your condition improves on the study medication and on the sponsor's discretion you might continue to receive the study drug for free until the study drug is available on the market.

If at any point you wish to withdraw from the research study you are entitled to do so by informing the researcher (Principle Investigator: Malik Almutairi on 0544479135). Please note however data cannot be withdrawn upon completion of the study as participants will be administered random ID numbers and there will be no way to identify your data.

8. ARE THERE RISKS IF I STOP BEING IN THE STUDY?

There is no risk if a participant stops being in the study. However, we encourage participating for the sake of improving our knowledge and improving strategies for reducing diabetes. Participants will not lose any rights from getting treatment when he or she decides to withdraw from the study.

9. WHAT SIDE EFFECTS OR RISKS CAN I EXPECT FROM BEING IN THE STUDY?

No major risk can be expected. However, minor risks such as physical pain that comes with blood sample taking could be expected. Mild side effects such as bloating, headache may happen. However, based in previous studies this rarely occurred.

10. ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

You have been chosen because you responded to the advertisements and you satisfy the admission criteria. Whilst this research may not provide benefit to you directly, it will show you the result of your blood tests if he or she wants.

Note: Taking part in this study may or may not make your health better. While doctor(s) (investigator(s) hope that the results of this study may increase understanding for the disease pathogenesis or lead to better diagnosis or treatment, there is no proof of this yet. You may get tests

(investigations), and therapy (study therapy/drugs/device) free, if sponsored or provided by the research companies or funded by industry.

11. WHAT OTHER OPTIONS ARE THERE?

The alternative is not to participate

12. WHAT IF I WILL TRAVEL OUTSIDE THE KINGDOM OR ABROAD WHILE IN THE STUDY?

For your own safety, it is very important to inform your study doctor in advance regarding your plan for travelling outside the Kingdom or abroad while you're on study treatment.

13. WHAT HAPPENS IF I AM INJURED BECAUSE I TOOK PART IN THIS STUDY?

You should inform your study investigator immediately about any discomforts/ illness / injuries during this study. Moreover, upon the principal investigator's decision that this injury / illness is study related, then all treating procedures, follow-ups, hospitalization will be covered by *King Khalid Hospital*. This information of your sickness/injury will be collected, documented and reported as adverse event(s) with confidentiality.

Note: It is important that you tell Mr. Malik Almutairi if you feel physically or mentally sick, are injured physically or mentally, are compromised socially, after taking part (after signing the informed consent form) in this study. You can tell the doctor in person or call him at 0544479135. Treatment, including the investigational tests will be provided to you, in case if it is applicable. This information of your sickness/ injury will be collected, documented and reported as Adverse Event(s) with confidentiality.

14. WHAT ARE THE COSTS OF TAKING PART IN THE STUDY?

You will not be asked to pay for participation or any procedure, drug, and laboratory test related to the study.

15. WILL I BE PAID FOR MY TAKING PART IN THIS STUDY?

You *will not* be compensated for your time spent for study, effort and travel expenses

16. WILL MY MEDICAL INFORMATION BE KEPT PRIVATE?

All of the materials collected are for research purposes only, and data will be kept in strict confidence. No information will be given to anyone without permission from the subject. Confidentiality will be ensured by use of identification codes. All data, whether generated in the laboratory or at the diet clinic at KKUH, will be identified with a randomly generated identification code unique to the subject. The database will be secured with password protection. The informatics investigators will receive only coded information that is entered into the database under those identification numbers. Electronic communication with outside collaborators will involve only unidentifiable information. Adverse Event (AE) reports will not include subject- or group-identifiable material. The report will only include the identification code. The PI or study investigators will review all data collection forms on an ongoing basis for data completeness and accuracy as well as protocol compliance. All the

information collected in subjects' records belong to King Saud University, and the study sponsor. Your records will remain strictly confidential and will not be made publicly available. However, in some situations as study requires, your information could be provided to the relevant personnel or permitted by the regulations of SFDA/FDA/KSU IRB or law within the limitations and boundaries of Saudi Arabia national, Sharia and ethical laws.

Scientific data from this research project may be presented or published in the journal but your personal identity will always remain protected.

SECTION C:

17. I am being asked to give my biosamples(s) as per study protocol along my clinical data.
- o Participant diagnosis of pre-diabetic will be ensured through medical record.
 - o Taking Blood samples from participants for blood sugar and insulin level measurement.
 - o Taking weight, height, and birth date for taking basic data to know age and Body Mass Index for linking data with study results.
 - o Taking names, phone, and email to contact participants. However, coding will be done during study conduction.
18. I am asked for the biosamples(s) listed with the mentioned condition(s).
- o One Blood samples for blood sugar measurement at the screening. And 6 times of blood samples during the study conduction at intervals of (30, 60, 90, 120) using finger prick which only require blood drops.
 - o 4 times blood samples for insulin level measurement will be taken at intervals of (30, 60, 90, 120) using medical syringes which require **approximately 2-3 ml of blood samples**.

SECTION D:

19. WHAT ARE MY RIGHTS IF I TAKE PART IN THIS STUDY?

Taking part in this study is your choice. You may choose either to 'take part' *or* 'not to take part' in the study. You may leave the study at any time during your participation. No matter what decision you make, there will be no penalty to you and you will not lose any of your regular benefits. Leaving the study will not affect your medical care. You can still get your medical care from KSUMC. However, Mr. *Malik Almutairi* may use information that was collected prior or after your leaving the study.

In case of injury resulting from this study, you do not lose any of your legal rights to seek payment by signing this form.

For further information regarding your rights as a participant, you may call the office of Institutional Review Board, King Saud University at (+966-11) 469-1529 to 32.

20. WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

Before you agree to be in this study, you will talk to a study team member qualified to tell you about this study. You can ask questions about any aspect of the research. If you have further questions about the study, you may ask them at any time. You may call (*Malik Almutairi at 0544479135*)

SECTION E:

SUBJECT'S CONSENT

The research and procedures have been explained to me. I have been allowed to ask any questions and all my questions have been answered. I have read the consent and have had time to think about participating. I can ask any additional questions I may think of later. I may refuse to participate in the study, and I may quit being in the study at any time without any penalty and without affecting my health care.

- i) I have been given permission for the study doctor and sponsor to use and disclose my personal health information.
- ii) I will receive a signed copy of this consent form.
- iii) I agree to participate in this study. My agreement is voluntary. I do not have to sign this form if I do not want to be part of this research study.
- iv) I consent for my biosamples to be sent to the Laboratory department at King Khalid Hospital / Riyadh / the Kingdom of Saudi Arabia.
- v) I consent that my biosamples will be used for genetic testing. YES/ NO

[Please provide the name of affiliated laboratory/company, name of country to where samples are sent as part of research study; if outside the Kingdom, then submit KSU-IRB form # 016-E]

Subject Signature:	
Date:	
Time: (AM <input type="checkbox"/> PM <input type="checkbox"/>)	

Person Obtaining Consent:

I have explained the nature and purpose of the study and the risks involved. I have answered and will answer questions to the best of my ability. I will give a signed copy of the consent form to the subject.

Signature of Person Obtaining Consent:	
Date:	
Time: (AM <input type="checkbox"/> PM <input type="checkbox"/>)	
Principal Investigator:	
Signature of Principal Investigator:	
Date:	
Time: (AM <input type="checkbox"/> PM <input type="checkbox"/>)	



SECTION F:

STOP! Do not use the following signature lines unless third party consent is being requested. (For subjects who are unable to give consent).

For subjects unable to consent:

Legally Authorized Representative:	
Date:	
Person Obtaining Consent:	
Date:	

For children who cannot give consent:

The person being considered for this study is unable to consent for himself/herself because he/she is a minor. By signing below, you are giving your permission for your child to be included in this study.

Parent or Legal Guardian:	
Date:	

IMPARTIAL WITNESS: In case when subject is unable to read and/or understand the text and nature of the ICF and the study, a witness is required.

Witness name:	
Relation, if any, with subject:	
Signature:	
Date:	
Person Obtaining Consent:	
Date:	

Principal Investigator:	
Signature	
Date:	
Time (AM <input type="checkbox"/> PM <input type="checkbox"/>)	

For more information, please visit the website of the Research Ethics Committee in King Saud University (http://dsrs.ksu.edu.sa/ar/comm_Policies)