

# LIBERIA COFFEE PEEL YOGURT DRINK FOR HYPERCHOLESTEROLEMIA REDUCTION

## (Coffee Pulp Yogurt Drink)



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### INTRODUCTION

Hypercholesterolemia, or high blood cholesterol levels. Cholesterol is not dangerous as it is required for the synthesis of cell membranes, and hormones and is required for fat digestion. In Malaysia, heart problems remained as the main cause of death, about 17.0% of the total medically certified deaths (109,155) in 2020. (Dosh.gov.my, (2021).



Excessive Fat Accumulation (Puhl&Heuer, 2010)



### PURPOSE OF THE INVENTION

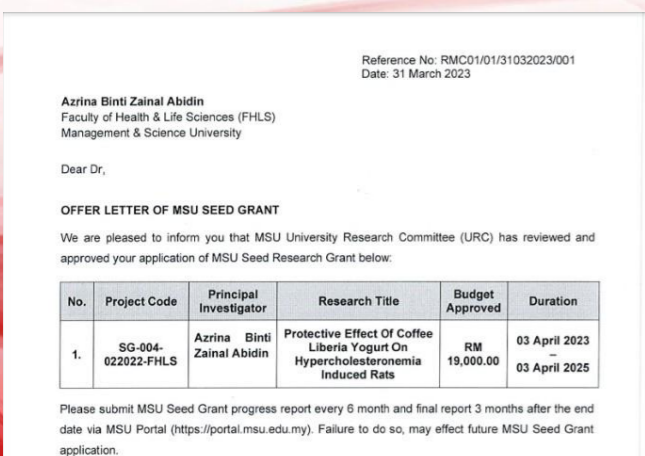
The Coffee Pulp Yoghurt drink is intended to provide an all-natural solution to the anti-obesity and hypercholesterolemia conditions. The drink is produced from Liberia coffee peel (husk) and natural components, which not only helps to reduce body weight but also prevents the development of hypercholesterolemia.

### FUNCTIONALITY

Coffee peel's antioxidant and anti-inflammatory properties aid in the healing of inflammation in the body. Caffeine in coffee peel is also a natural vasodilator, which means it can assist to boost blood flow and circulation in the body and prevent hypercholesterolemia from developing. Combining coffee peel with yoghurt increased the beneficial effect of coffee peel because it is considered a probiotic carrier food

Research done using animal: manuscript under review by peer

### FUNDING AND COLLABORATION



MSU seed Grants

Natural Tone Sdn Bhd



### COMMERCIALIZATION POTENTIAL



### INTENDED USERS

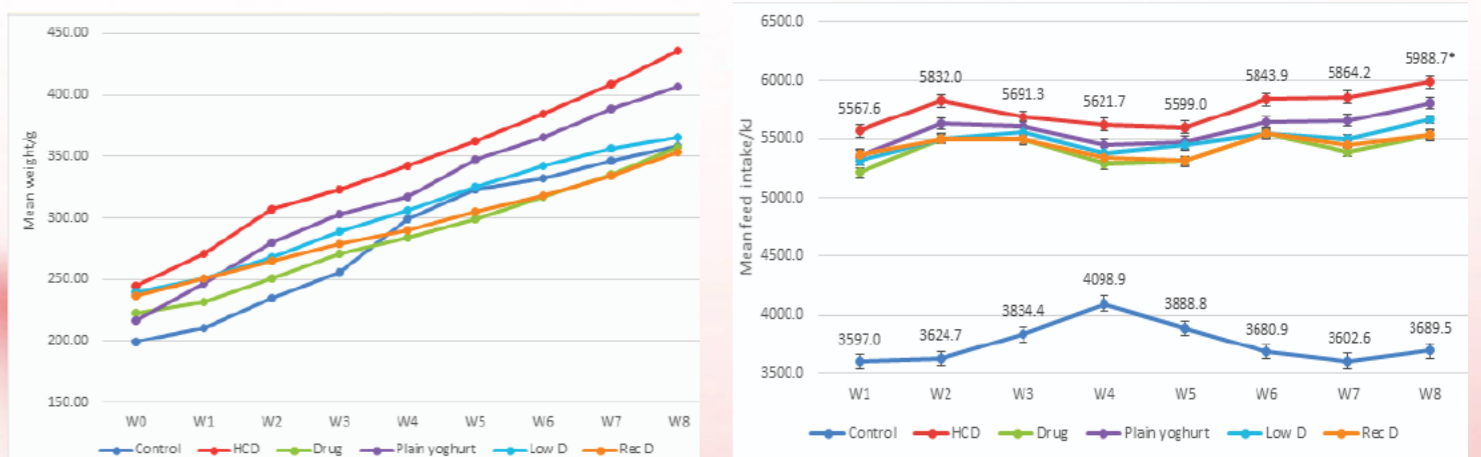


### IMPACT ON THE ENVIRONMENT

Eco-friendly product that uses natural ingredients which is waste product (coffee peel/husk). It also reduces its impact on the environment



### RESEARCH FINDINGS



### Body weight and food intake of rats

Group	TC (mmol/L)	HDL-C (mmol/L)	Non-HDL-Cholesterol (mmol/L)	LDL-C (mmol/L)	TG (mmol/L)	C/HDL Ratio
G1	1.60±0.06	<0.5	1.10±0.06	0.81±0.07	0.60±0.06	3.20±0.12
G2	1.95±0.15*	≤0.5	1.50±0.15*	0.97±0.20	1.57±0.77*	3.83±0.31*
G3	1.41±0.09	<0.5	0.93±0.09	0.40±0.06	1.17±1.17	2.87±0.18
G4	1.84±0.14*	≤0.5	1.23±0.12	0.77±0.15*	1.33±0.06	3.30±0.17*
G5	1.77±0.27	<0.5	1.30±0.25*	0.53±0.34*	1.27±1.23	2.70±0.42
G6	1.23±0.09	<0.5	0.73±0.09	0.23±0.09	1.07±1.07	2.47±0.18

### Lipid profile of rats

There was also a decrease in the liver due to the C. liberica pulp yogurt. A study observed that yoghurt with plant extracts had therapeutic effects and decreased liver weight while the increase in liver weight is closely related to liver lipid increase. Caffeine increases the concentration of ER Ca<sup>2+</sup>. Excess ER Ca<sup>2+</sup> leads to an increase in the peptide binding capacity. The failure of SREBP2 to quickly exit the ER leads to a net reduction in the expression of lipid regulatory genes, including PCSK9, with reduced outflow of de novo PCSK9, cell surface LDLR exhibits increased half-life and abundance, leading in a net increase in LDLc clearance. (Lebeau., et al 2022).

TRL LEVEL: 7 (Pre commercial scale)

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