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**LIMITLESS MIND:**  
EMPOWERING INNOVATION THROUGH VISUALIZATION



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ABSTRACTS BOOK

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# ORGANIC WASTE PILLOW

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## ABSTRACT

Sleeping disorder is a major health impact for Malaysian. We have seen a number of working adults, students and senior citizen having sleeping disorder. A recent study showed that 9 out of 10 Malaysians are suffer from sleeping problems. The five most common sleep disorders are Insomnia, Sleep Apnea, Narcolepsy, Restless Legs Syndrome and Sleep Behavior Disorder. Therefore, to address this sleeping disorder, we (HSR SQUAD) has come up with an innovation idea to design a pillow by using organic wastes such as palm oil husk, corncob and banana trunk which will form a solid pillow as per other pillows in the market. We HSR SQUAD have chosen organic waste as our materials to design our pillow. The materials that used for organic waste pillow are palm oil husk, corncob, banana trunk, activated carbon and garlic skin. The main objective of this innovation is to utilize organic waste and produce an useful product. Therefore, HSR squad had collected the mentioned organic wastes, drying it and arranged in 7 layers to form organic waste pillow. The selection of organic waste in line with our government effort to move from disposal to 4R (Reduce, Reuse, Recover and Recycle) for waste management. Moreover, a mechanical test has been carried out at accredited laboratory to determine the strength. HSQ squad believe that the utilization of organic waste into pillow will minimize the major environmental issues like global warming, ozone layer depletion and deforestation.

**Keywords:** organic waste, sleeping disorder, corncub, activated carbon and garlic skin

## 1. INTRODUCTION

Therefore, to address this sleeping disorder, HSR squad has come up with an innovation idea to design a pillow by using organic wastes such as palm oil husk, corncob, banana trunk, activated carbon and garlic skin which will form a solid pillow as per other pillows in the market. This pillow will provide a comfortable, mind free, stress free and a good sleep. In addition, the strength of organic wastes pillow will be 100 % same as made by cotton or polyester. This is proven by a mechanical test carried out at accredited laboratory. The selection of organic waste in line with our government effort to move from disposal to 4R Reduce, Reuse, Recover and Recycle for waste management. This approach will minimize the major environmental issues as global warming, ozone layer depletion and deforestation. This innovation also inter-related to 2 Sustainable Development Goals (SDG) namely good health, well-being and decent work.

## 2. MOTIVE AND PURPOSE FOR CREATING INVENTION

HSR squad has come up with an innovation idea to design a pillow by using organic wastes to utilize organic waste and to improve sleeping disorder.

### 3. CHARACTERISTICS & CREATIVE FEATURES OF INNOVATION

The ingredients used to make the pillow are from natural organic wastes which are easily available with zero cost. The strength of organic wastes pillow is also same as the pillow made by cotton or polyester. In fact, the strength of organic pillow has been tested at accredited laboratory. The result showed that the pillow back to original position once the force has been removed. There is no pillow made by organic waste pillow in the market yet and hence HSR's squad pillow is 100% original and new in the market.

### 4. CONTRIBUTION & MARKETABILITY OF INNOVATION

The selection of organic waste in line with our government effort to move from disposal to 4R. This approach will minimize the major environmental issues. This innovation which using organic wastes help to uphold the world focus towards Sustainable Development Goals (SDG). The cost of producing the organic waste pillow relatively low and below RM 5.00. This showed that this pillow will be easily reached in the market. In fact, we HSR team had given this organic waste pillow to primary school students, secondary school students, university students, working adults and senior citizen to sleep. The feedback was very good, and they had a good sleep.

### 5. METHODOLOGY

The methodology of organic waste pillow involving collection of organic waste, dry all the wastes and arrange and insert into pillow according to layers as below.

- 1<sup>st</sup> layer on banana trunk,
- 2<sup>nd</sup> layer on palm oil husk,
- 3<sup>rd</sup> layer on corn cob,
- 4<sup>th</sup> layer on palm oil husk,
- 5<sup>th</sup> layer on garlic skin,
- 6<sup>th</sup> layer on palm oil husk and
- 7<sup>th</sup> layer on banana trunk again.

Once all layers have been arranged lavender solution sprayed onto organic waste pillow.



**Figure 1.** Preparation of organic waste pillow

## 6. LABORATORY RESULT

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**CERTIFICATE OF TESTING**

Certificate No. : SM20837858 Page 2 of 3

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**Specimen description**

Specimen : Pillow from Organic Waste  
 Dimension : 32 cm (W) X 46 cm (L) X 12 cm (H)  
 SN : --

**Testing condition**

Test load : 0 – 92 Newton  
 Dimension of metal plate : 8 cm (W) X 15 cm (L)  
 Area of metal plate : 120 cm<sup>2</sup>  
 Ambient temperature : 23.0 ~ 23.5 °C  
 Ambient humidity : 50 ~ 55 %RH

Test method : 1.) Put pillow on solid surface  
 2.) Place a metal plate on middle of pillow  
 3.) Compress the pillow at 0.5 cm displacement interval  
 4.) Record the force value and convert it to equivalent pressure

**Test results**

Displacement (cm)	Force (Newton)	Equivalent pressure (Pascal)	Remark
0.5	16	1329	Pillow back to original shape after releasing the force
1	32	2665	
1.5	66	5493	
2	92	7694	

**Figure 2.** Certificate of testing on organic waste pillow

## REFERENCES

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2. Pihak Perpustakaan ingin memohon kelulusan YBhg. Profesor untuk membuat imbasan (*digitize*) dan memuat naik semua jenis penerbitan di bawah UiTM Cawangan Perak melalui Repositori Institusi UiTM, PTAR.
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Sekian, terima kasih.

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