



Effect of Breadnut

Peel Extract on (UCMSC) Proliferation



Yohanes Michael Mindo

SMA Kolese De Britto

@yohanesmichael377@gmail.com

supervisor: M.M Sudewi Fajarina S.Pd

INTRODUCTION

When the skin is injured, there will be a layer of skin that is lost. the skin will regenerate by closing the exposed skin layer with new skin tissue, the cell proliferation phase will play an important role in the wound healing phase. This became the initial idea to look for drugs to accelerate wound healing by increasing cell proliferation.

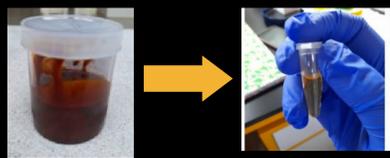
Research Goal : Find out the effect of breadnut peel extract on umbilical cord mesenchymal cell proliferation which will be compared with negative control.

EXPERIMENT DESIGN

Extract preparation



The breadnut fruit peel is dried for 1x24 hours, then crushed using a grinder to become powder. Then the maceration method was carried out, namely by soaking the powder with alcohol in a ratio of 1 : 3. This process is carried out in order to separate the content from water. The viscosity will eventually become like sauce.



The extract is then dissolved in the medium, which will later be put into the well-plate where it will be treated.

Cell Culture



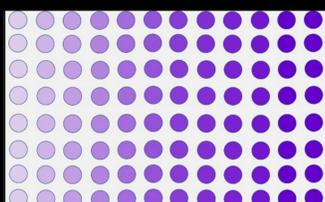
The umbilical cord is taken from the newborn. The umbilical cord is taken from the newborn, which will then be placed in a container culture and on the 10th day the cells can be harvested



After the cells were harvested, they were put into a flask, and put in an incubator for 1x24 hours. And put in the extract that has been dissolved in the medium

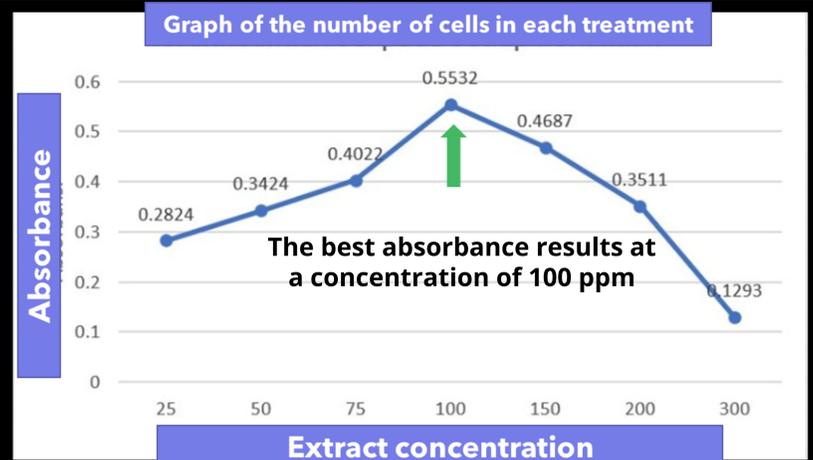


Cells were grown in well culture 96 at a density of 10,000 cells/well. And given MTS Assay reagent. Then put in an incubator for 4 hours. This reagent will react with the mitochondria of the cell which will form a purple color. Then the absorbance test will be carried out using a spectrophotometer.



•The darker the purple color, the higher the number of cells

RESULT AND ANALYSIS



- The best results from all treatments were at a concentration of 100 micrograms per milliliter/ppm
- At other concentrations it is thought to have cytotoxic properties, which will inhibit -cell proliferation
- This may happen because if the concentration is too high (above 100 ppm) , it still has the expected results, namely above control but not as optimal as 100 ppm as well as concentrations below 100 ppm, still above control but still below 100 ppm concentration.

This research was carried out using the in vitro method and produced data as stated above. which explain the higher values of absorbance, meaning the higher number of cell viability. although further research is needed to look at the existing variables that could affect the results

FUTURE WORK

1. Doing research in vivo, using animal models of wounds with Breadnut peel extract application topically every day.
2. Serving the extract in the form of an ointment as a wound medicine

REFERENCE

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