

# Investigation into the Cytotoxicity of Traditional Herbal Extracts to Cells

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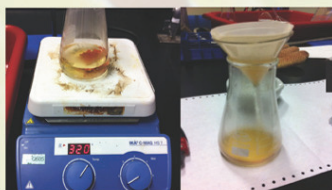
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## Introduction

Herbs have been used by mankind for centuries for the treatment of ailments and diseases. Indeed, since western medicine was discovered, many ailments and diseases have been cured. However, many still remain incurable. Hence, scientists are exploring traditional herbal remedies as an alternative treatment for diseases.

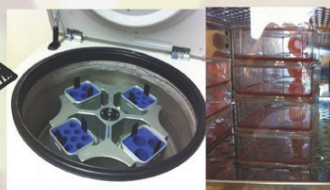
Cytotoxicity refers to the quality of being toxic to living cells. Although herbs have been used to cure ailments and diseases, investigating cytotoxicity of cells are rarely investigated using scientific methods.

## Methodology



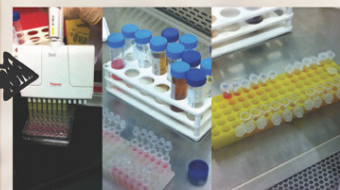
### 1 Preparation of herbs and extraction process

- Dried herbs are first crushed and weighed
- Boiling herbs in saline solution (NaCl)



### 2 Culturing of cells

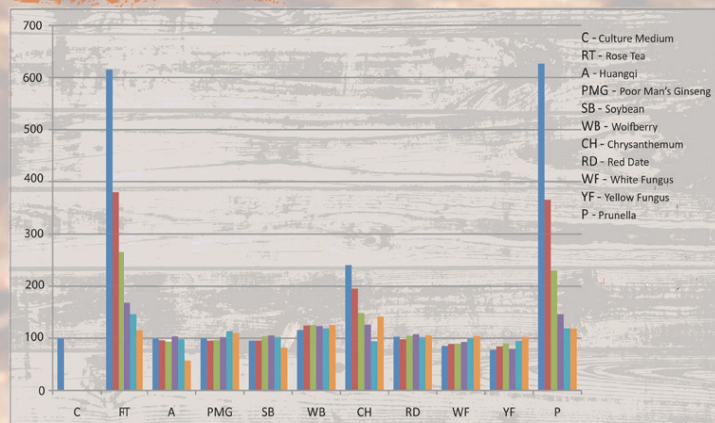
- Sub-culturing of cells to promote growth



### 3 Cytotoxicity Testing

- Counting number of viable cells
- Plating of viable cells into 96-well plates
- Preparation of cell extracts and cytotoxicity testing on WI-38 cells
- Determining the cytotoxicity of the cell extracts using CCK-8 reagent (Dojindo)

## Results



Percentage viability of WI-38 cells after 24 hour incubation with herbal extracts measured using CCK-8 reagent

The expected results of decreasing cell viability with each dilution, is observed for prunella and rose tea. Thus, it shows that these herbs are beneficial to the cells and can be used for future research. The other herbs do not show any trend. This could be attributed to the fact that the herbs are only beneficial to the cells when used in a suitable concentration or does not have any benefit to the cells at all.

## Conclusion

From the results obtained, all chosen herbs were not harmful to human lung cells (WI-38). Exposure of WI-38 cells to: Wolfberry (WB), Chrysanthemum (CH), Rose Tea (RT) and Prunella (P) resulted in an increase in viability and perhaps, cell proliferation.

This was highly evident in: Chrysanthemum (CH), Rose Tea (RT) and Prunella (P) results. Hence, they could actually be beneficial to enhance the growth of cells, and thus be applicable to accelerate wound healing processes when administered.

The result is also significant as it provides information on whether the herb renowned for use in cancer prevention/treatment, has any adverse effects on normal non-cancerous human cells.

Hence, further investigations on the herbs identified should be done to establish true properties which may be beneficial to treat wounds or other related applications.

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