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African geranium (Umckaloabo) extract has anti-viral activity on Influenza virus

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Abstract

Extract of Umckaloabo has a demonstrated anti-viral effect across multiple strains of Influenza. Cells treated with Umckaloabo produced significantly less virus than those not treated. This demonstrates the effectiveness of Umckaloabo as an appropriate treatment for Influenza infections.

Introduction

Influenza has a global spread and infects countless people annually. While there are many medications that can be taken to treat the symptoms of infection, there are few medications that target the causative agent, Influenza virus. An extract of the African geranium plant has been used as a traditional medicine by the Zulu peoples for centuries to treat upper respiratory tract infections. Previous studies have demonstrated that this extract, also known as Umckaloabo, is effective in treating influenza infections (Silva I., Fernandez E., 2005, Silva I., Fernandez E., Cunningham C., 2008). This study investigates whether Umckaloabo has an anti-viral effect on the Influenza virus.

Method

Developing fluorescent virus strains

Three strains (versions) of Influenza virus (A/Sydney/2007 H1N1, A/Bangalore/1998 H3N5 and A/New York/2002 H5N1) were developed to incorporate Green Fluorescent Protein (GFP) into their virus envelope. GFP, and hence the viruses, fluoresce green when exposed to UV light. By measuring fluorescence, the concentration of influenza virus can be determined. The viruses were grown in Canine Kidney cells and then isolated. Human carcinoma lung epithelial cells (HCLEC) were also grown in a serum containing necessary nutrients, antibiotics and anti-fungal agents. They were incubated at 37°C and 5% CO₂.

Testing the antiviral effect of Umckaloabo

HCLEC cells were separated into groups (see figure 1). After treatment with serial dilutions of Umckaloabo, the solutions the cells were incubated in were collected. To determine the amount of virus in each solution, total GFP fluorescence emissions were measured using a Genios Plus reader. A laboratory technician took one reading for each group of cells. The results for each concentration of Umckaloabo were pooled and the mean was calculated for each.

Results

The anti-viral activity of Umckaloabo was demonstrated in HCLEC cells treated with serial dilutions of Umckaloabo extract. The degree of anti-viral activity was proportional to Umckaloabo concentration. This was confirmed by the average readings of fluorescence read outs.

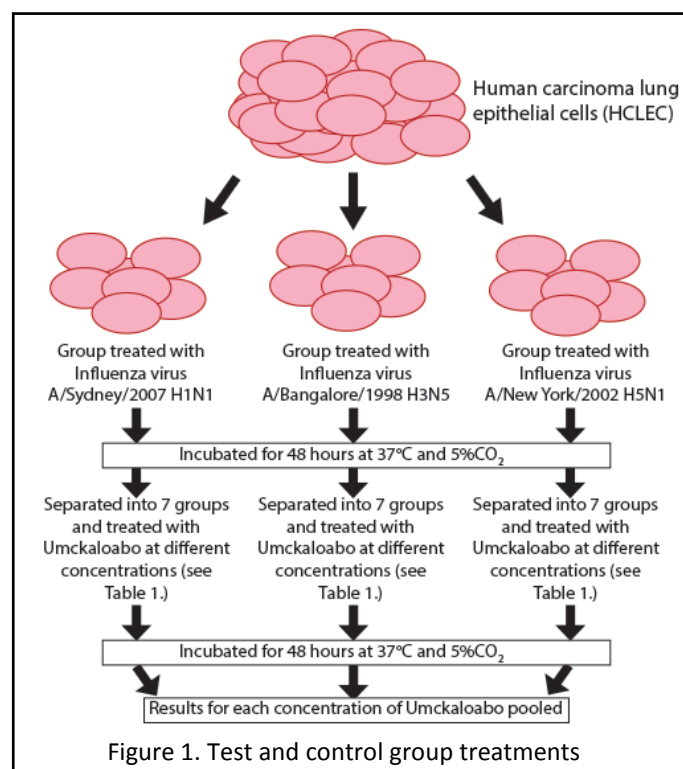


Figure 1. Test and control group treatments

Table 1. Virus fluorescence when treated with Umckaloabo

Umckaloabo concentration $\mu\text{g/ml}$	Mean fluorescence read out	Margin of error
0	50000	+/- 6000
0.1	48000	+/- 2000
1	30000	+/- 1500
10	25000	+/- 1000
100	15000	+/- 500
1000	10000	+/- 275
10000	9500	+/- 250

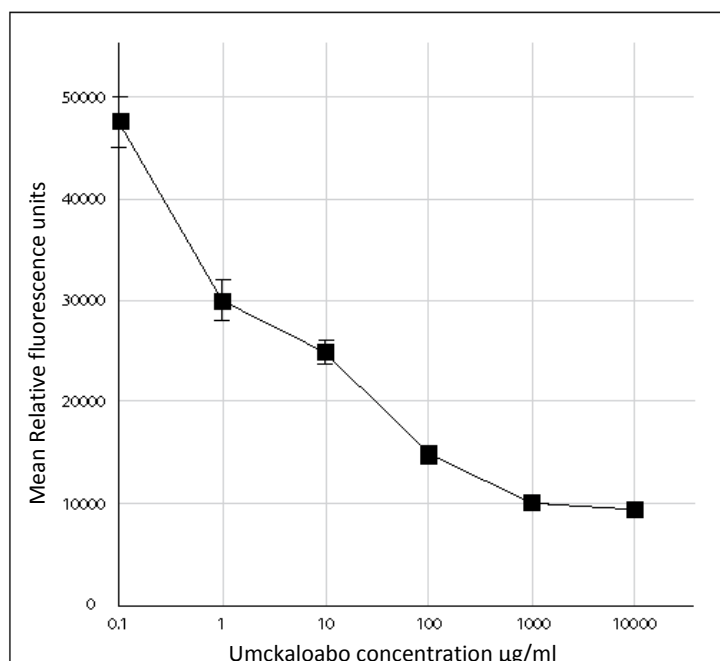


Figure 1. Virus fluorescence when treated with Umckaloabo

Discussion

This study has confirmed that Umckaloabo exhibits anti-viral activity against Influenza virus. This is in agreement with previous findings.

This study also found that very small concentrations of Umckaloabo, such as 0.1 $\mu\text{g/ml}$, can exert an inhibitory effect.

The difference in viral production across the strains (data not shown) could suggest that Umckaloabo has a direct effect on molecules that vary between strains.

Though this study focused on cells

in vitro (in the laboratory), we believe that similar results would be observed *in vivo* (within live subjects).

Conclusion

This study has found that Umckaloabo has anti-viral activity on Influenza virus. The activity is very robust across a number of strains of Influenza. These findings substantiate the benefits of treating Influenza infections with Umckaloabo.

Conflict of interest

This study was funded by the Natural Health for all Group who had no influence over the outcome of the study.

References

Silva I., Fernandez E., 2005, Emerging herbal remedies to fight infections. *Current Res into Ancient Medicines*.21:202-206

Silva I., Fernandez E., Cunningham C., 2008, Patient upper respiratory tract infection symptoms decrease with African geranium extract treatment. *Current Res into Ancient Medicines*.24:137-149

Additional information for your evaluation:

There are no additional studies that have the same experimental method or methodology.

There are no additional studies (including those in the reference section) that show similar findings or investigate the effectiveness of Umckaloabo on Influenza virus.