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# Achieving Herd Immunity in Covid through Neutraceuticals

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**ABSTRACT:** Radiance herbals is a food and cosmetics company based out of Delhi, India.. Ever since the beginning of the pandemic, we have been working out various solutions relating to pandemic..like sanitizers etc.
We wanted to formulate a food supplement which is organic in nature, non toxic, food grade which anyone can have, anytime to cure Covid . The product should have Sars Covid inhibiting properties at the same time it should be non cytotoxic.
The major bottleneck in Covid treatment particularly in Asian countries is people reaching our late to doctors, by that time virus has reached lungs. Lack of infrastructure makes matter worst.
Even then there is no set remedy/ cure available which guarantees patient relief/ cure. A handy, affordable solution is required where patient can start treatment at home and hospitals won't be overwhelmed.
Over a period of time and lot of experimentation, we were able to formulate a food supplement made of all natural extracts and proteins, which complied on all above mentioned requirements. The supplement was approved by FSSAI ( Food Regulatory Authority In India)
We named it RHNTDIS.

## I. INGREDIENTS

The basic ingredients selection involved all naturally occurring anti virulent herbal extracts which were food grade.. We selected Aloe vera, Lemon Grass and Green tea for this purpose.
Ingredients:
1 Aloe vera gel
2 Lemon grass extract
3 Green tea extract
4 Natural protein blend ( edible grade)
5 Preservative (class II) food grade
We noticed that at certain percentage and temperature when blended with some vegan protein blend, it produces great anti virulent properties and inhibits Sars covid to 50% (Samples were sent to Govt Approved Biotech Lab for testing)

## II. METHODOLOGY

**ART 1:**
**Assay carried out at Central Cell line Repository of RGCB, Trivandrum**
**Name of the Test compound: RHNTDIS**
**Supplied by : Radiance Herbals**

The dilution used 1:1000 of the sample solution
The samples were further diluted in DMEM containing 10% Fetal Bovine Serum to determine the cytotoxicity in HEK293T cells.

**Cytotoxicity assay using chromatin condensation**

The HEK293T cells stably expressing human ACE2 were grown on 96 glass bottom plates and allowed to grow for 24 hours. Then the cells were stained with fluorescent nuclear dye Hoechst 33342 at 5 ug per ml for five minutes. The cells were washed and replaced with fresh medium and maintained in $CO_2$ incubator at 37 $^{o}$ C for 4 hours. The test samples were incubated with the cells at the indicated concentration. Fluorescent images were captured at 48h using DAPI filter set to visualize cell death using an inverted Fluorescent Microscope Nikon TiE. The images were captured with an EMCCD camera from Andor using NIS element software (Nikon). The cell death was interpreted based on the condensed chromatin compared to the control untreated wells (Figure).

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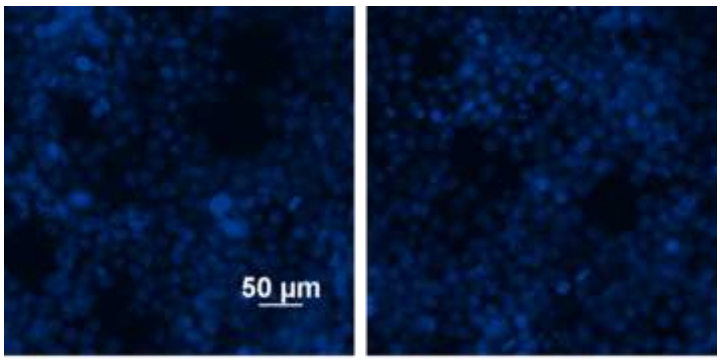
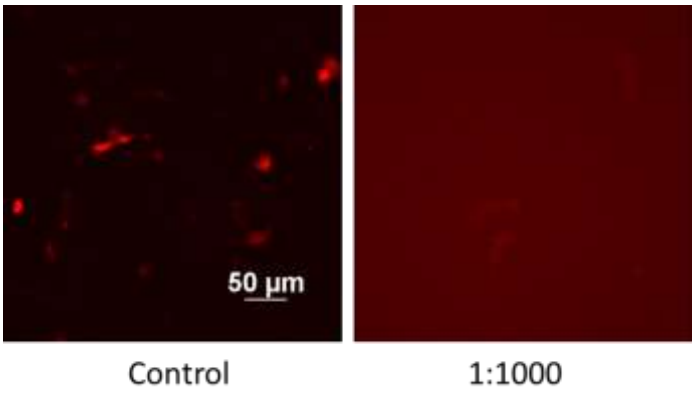



Based on the cytotoxicity, the sample at 1:1000 dilution showed no cytotoxicity to the HEK293T cells.

**FINAL REPORT OF THE SARS CoV2 pseudovirion Assay**
**(To be used for Research)**

Pseudovirion Assay:

The assay is based on the lentiviral backbone expressing Td tomato as a traceable marker. We have utilized stable colon cancer cell HEK293T expressing human ACE2 as the SARS permissive cells. The procedure involves transfection of HEK Lenti Cells (Invitrogen) with the expression vector encoding Td tomato, a plasmid expressing Spike, and plasmids expressing the minimal set of lentiviral proteins necessary to assemble viral particles (Gag/Pol,Rev). The cells were transfected with the expression vectors prepared via Quiagen Midi prep using lipofectamine 2000 as per the manufacturer's instruction. After 6h, the cells were replaced with fresh medium containing serum. From the transfected cells, SARS- CoV2- Spike-pseudotyped lentiviral particles were collected at 72 hours and filtered using 0.45 micron filter and used to infect the HEK293T– hACE2 cells using polybrene as per the standard protocol. The test samples were incubated with pseudovirions containing medium at indicated dilutions. The media diluted pseudovirion sample acts as the control. After 48h the cells were imaged under florescent microscope and cells expressing Td tomato fluorescence were counted and percentage positivity was calculated based on the total number of cells in the field.




**As per the cytotoxicity results and Pseudovirion assay, RH NTDIS inhibited SARS COV2 pseudoviron to 10% of cells (50% inhibition) in 1:1000 dilution compared to untreated control cells.**

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An Autonomous National Institute for Discovery, Innovation & Translation in Biotechnology and Disease Biology
Government of India, Ministry of Science & Technology, Department of Biotechnology

| Sample | Average Percentage of Td tomato positive cells (SARS Pseudovirion positivity) | Inference |
|---|---|---|
| Control (No test sample) | Pseudovirion fluorescence in 20 % of cells | S protein pseudotyping generally provide 18-22% efficiency with Td tomato platform |
| Sample 1:1000 | Pseudovirion fluorescence in only 10 % of cells | 50% inhibition of Pseudovirions in HEX29T ACE2 over expressed cells |

As per the cytotoxicity results and Pseudovirion assay, **RH NTDIS** inhibited SARS CoV2 pseudoviron to 10% of cells (50% inhibition) in 1:1000 dilution compared to untreated control cells.

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PRACTICAL TRIALS:

Bieng a neutraceutical , product didn't require clinical trials . It could be advised /prescribed straightaway . Also since it was 100% natural it would not interfere with any medication a person is having

Over a period of time ,we were able to assess the ideal dosage based on customers feedback . This supplement was also effective on mutant variants.

**For prevention**

1-2 tea spoons everyday

**For Covid patients**

2 tea spoons thrice a day for 4 days along with paracetamol ( in case of fever )

Other people in house should have 2 tea spoons twice a day

**For oxygen patients**

2 tea spoons 4 times a day till normal breathing is restored .

Dosage can be slowly reduced after cure and then 1-2 tea spoons daily ..

Other prescribed medication can continue alongside.

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## III. RESULTS:

**Prevention**

We observed that people who were **taking 1-2 tea spoons daily didn't get corona positive**

**Corona patients ( mild to moderate)**

People who were corona positive took 2 tea spoons three times a day along with paracetamol ( in case of fever) became non symptomatic in 3-4 days . They reduced the dosage to 2 spoons a day for next 5-6 days.. 11-14 days they tested negative

**Corona patients ( moderate to acute)**

People who had problem in breathing and on oxygen support took 2 tea spoons 4 times a day till normal breathing is restored.. They also took other prescribed medication alongside. These patients restored to normal breathing 3/5 days. Then reduced dosage gradually

## IV. CONCLUSION:

Neutraceuticals can be really effective in achieving herd immunity, their biggest advantage

- being handy
- economical
- can be prescribed with any other medication..
- can be referred to any age groups or person ( even children and pregnant women)
- Have no side effects like vaccines.
- People can take it for prevention regularly and for cure. (Only dosage differs)

Their success would reduce pressure on health care systems and bring back people to normal life where they don't have to wear masks regularly and maintain social-distancing.

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