Evaluation Biological Activity of Allicin + Nasaleze

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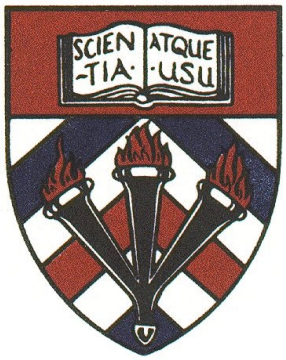

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Evaluation of the biological activity of Allicin powder + Nasaleze powder

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Report prepared for:

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Introduction

The quality of garlic formulations is related to the content of marker compounds or suspected active compound groups.

In an attempt to produce a novel method to deliver allicin to the nasal cavity mixtures of allicin powder and the cellulose powder mixture of Nasaleze were investigated for antistaphylococcal activity

The biological activity of allicin against bacteria is well established, we have further shown that certain species of methicillin resistant *Staphylococcus aureus* (MRSA) are exceptionally susceptible to allicin. Using a susceptible strain of MRSA, we have developed a novel method whereby we can determine whether or not different batches of allicin capsules possess biological activity.

There are a number of tests available to determine the anti-microbial activity of selected agents. Diffusion tests determine the susceptibility of isolates by measuring the zones of inhibition around a measured amount of the anti-microbial agent. Zones of inhibition not more than 6mm smaller than those of a known control strain indicate that the test bacterium is sensitive to the anti-microbial agent. Zone sizes of 12mm or less usually indicate antibiotic resistance. There is also an intermediate antibiotic resistant group between with susceptibilities between these levels and zone sizes greater than 12mm

Materials and methods

Bacteria: MRSA clinical isolate Uel301 was used. Overnight broth cultures in isosensitest broth were prepared.

Media: Isosensitest agar (Oxoid Ltd) were used.

Powders: supplied by Allicin International, Nasaleze powder + allicin powder

Method:

- A broth containing 10^5 cfu/ml was prepared in peptone water.
- 0.2ml was spread over each isosensitest plate.
- Plates were air dried and a 6mm well cut in the centre of the plate.
- A volume of 100ug or 200ug of each powder was added to each well.

- Plates were incubated overnight at 37oC
- The presence of zones of inhibition around a well is indicative of biological activity being present. No zone around the 6mm well, (as with the negative control) represented no biological activity.

Results

Comparative zone sizes in mm, 0 represents 6mm well size.

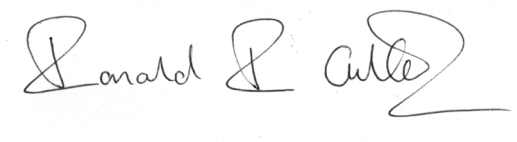
number	Preparation	100ug	Bioactive	150ug	Bioactive
1	Negative control	0 (6mm)	-	0 (6mm)	-
2	Nasaleze	0	-	0	-
3	Allicin BN 2069/03	14	+	19	+
4	Allicin CPC 2102 4-1	23	+	27	+
5	Allicin + CPC 2102 6-1	28	+	28	+
6	Allicin CPC 2069/03 4-1	12	+	17	+
7	Allicin CPC 21028-1	22	+	26	+

Conclusion:

- The method was shown to effectively demonstrate biological activity present in a number of powder mixtures.
- The most active powder was Allicin + CPC 2102 6-1

Recommendations:

- Allicin powder mixes well with Nasaleze and produces reasonable zones of inhibition
- Further work is required to optimise the mixtures to be used especially to determine the balance between activity and gelatinisation.
- Some cellulose must be present in the mixture for gelatinisation to occur



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