Migal Service Laboratories
Chemistry & Chromatography Laboratories
Microbiological Laboratory

מעבדות השירות מיג"ל
מעבדת הכימיה והכרומטוגרפיה
מעבדת המיקרוביולוגיה

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Zuf Globus Ltd,
North Industrial Area
Kiryat Shmona

Report No. 18391

Susceptibility of *Staphylococcus aureus, Candida albicans* and *Enterococcus feacalis* to "Flormel" product of "Zuf Globus Ltd"

Experimental procedures.

Product to be examined: "Flormel", supplied by " **Zuf Globus Ltd**" on 23-03-11

1. Bacterial strain examined:
   A. *Enterococcus (Streptococcus) feacalis* ATCC 51299
   B. *Staphylococcus aureus* ATCC 25923
   C. *Candida albicans* ATCC 10231
3. Methods: product insert to specific medium of the microorganism
4. Culture conditions, Media used: KF Streptococcus Agar for *E. feacalis*; Baird Parker Agar for *S. aureus* and Brain heart infusion agar (BHIA) for *C. albicans* Incubation at Aerobic conditions.
5. The product samples were added in 3 different concentrations (10%; 20% & 30%) into the melted agar medium before puring into a sterile plate. The microorganismsm were inoculated at 10^4- 10^3 CFU/plate.
6. As a control 30% Ethanol solution was used, The solution was added to the melted agar in the same percentages and the same procedure as the product.
7. The experiment was performed with 5 replicats for each treatment.
8. Another control for this experiment, was a medium with no added product - **Reference plate.**
9. The test results are acording to "growth scale". Microorgansim growth in treatment compared to growth in reference plate. The scale is between 0-5 (5= growth in reference plate; 0= no growth).

Results

a. Their were no colonies growth in the plates with 20% and 30% product, until 96 hour of incubation for the 3 microorganisms examined. In the Ethanol control their was an inhibition of growth at 30% Ethanol, but not in the 20% Ethanol plates.

In the 10% "Flormel" treatment, after 48h of incubation there was no growth in *E. feaclis* and *S. aureus*, but there was a slight growth in the plate of *C. albicans*. After 96h of incubation their was slight growth of *C. albicans* and *E. feacalis* colonies . The *S. aureus* was stil totally hinhibited.

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Table 1
Effect of "Flormel" (10%; 20% and 30%) added to the agar medium on growth of *Staphylococcus aureus, Candida albicans* and *Enterococcus feacalis* colonies, after 48 and 96h of incubation. As a control 30% Ethanol solution was added at the same conditions and concentrations. The growth is presented in a scale from 0-5, where 5 is the maximal colonies growth.

		Product			Ethanol (30%)		
Microorganism	**Reference**	**10%**	**20%**	**30%**	**10%**	**20%**	**30%**
After 48h							
Staphylococcus aureus	5	0	0	0	5	5	2
Enterococcus feacalis	5	0	0	0	5	5	3
Candida albicans	5	1	0	0	5	4	0
After 96h							
Staphylococcus aureus	5	0	0	0	5	5	4
Enterococcus feacalis	5	1	0	0	5	5	0
Candida albicans	5	1	0	0	5	5	0

*The results are average of 5 replicats.

* The microorganisim concentration in plate was : *E. feacalis* $3.9*10^3$ CFU/plate; *S. aureus* $1.7*10^3$ CFU/plate; *C. albicans* $2.6*10^3$ CFU/plate.

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