

ARTICLE / INVESTIGACIÓN

Exodia phenomenon of foodborne Mycophages cocktails against chimeric strains of *Candida albicans* recovered from dairy chain ecosystems in Baghdad

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Abstract: Influential, organized groups with natural antimicrobial and anti-biofilm broad-spectrum power exist within the food chain, like a hidden dormant mimic hygienic bio life nanobodies that can terminate multiple opportunistic disease entities owing multi-stress resistant forbidden recalcitrant power, such as *Candida albicans*. These wonderful dynamic forces created by ALLAH Almighty are the Mycophages or fungi-eating state of fungi foodborne phages, and this project was redirected to be a dare to leap from us towards the future. Multi-stress resistant *C. albicans* that are resistant to different antifungal agents with their genetic tolerance plasticity to thermal pasteurization decontamination module as well as to ultraviolet irradiation hurdle strategy recovered from raw milk (mastitis), yogurt and soft cheese with versatile phenotypes resident in topic sectors of Abu-Ghraib, Al-Fudhaliyah and Al-Sadrya in Baghdad. From the other side of trueness, we discover an abnormal deviated activity of bacteriophages cocktails that behave with broad-spectrum functions against Methicillin-resistant *Staphylococcus aureus* (MRSA) and Vancomycin-resistant *Streptococci* (VRE) as lytic bactericidal and versus multi stress resistant *C. albicans* as redirected terminator lytic Mycophages thus objected to be a new nano-built hygienic phenomenon entity (Exodia).

Key words: Exodia, Lytic Mycophages, Multi stress-resistant *Candida albicans*, dairy chain ecosystems.

Introduction

Global multidrug resistance pandemic problems with massive frequency and distribution patterns can hit and threaten a strike crisis worldwide without any alarm warning. Misuse, inadequate and poor manipulation of antibiotics in medicine and livestock farming can change sensitivity patterns with the natural acquisition of epigenetic tolerance cascaded by genetic resistance. Antibiotics escape sequelae in the pathogenic matrix under selective pressure and terminate with forbidden sequences or adaptive chain of tolerance cascaded by the opposition with the appearance of persisters. Upgraded evolution under elevated concentrations of drugs as natural legacy transformation resident in efflux pumps terminating with resistance aberrant. Shifting to this forbidden recalcitrant behavior due to biofilm entity barrier can dramatically increase with increased exposure to antibiotics or similar shortcuts among and within versatile and diverse environment culmination in resident ecosystem cascaded by priority elevation of a minimum inhibitory concentration of that selected or cross thresholds of antibiotics. Building up these behaviors might exaggerate the pandemic situation by constructing forbidden subclones as persisters phenotype^{1,2}.

The evolution of bacteriophage matrix ecosystems displayed a pressing issue in developing new diverse, and versatile strategies to overcome and combat emergent and resident biohazard and bioterror infectious foci. Global limitations and obstacles in the massive production of such hygienic nanobodies concern in their efficacy or potency thresholds overwhelmed by CRISPR-CAS resistance module, stability shelf-life, diversity in broad-spectrum viability and action potential, segregation of hygienic lytic arm from forbidden lyso-

geny, public fearing and an understanding from vital applications, etc. Characterization and redirection of special topics are important features of future projects. The Pharmacokinetics and pharmacodynamics of recovered phage cocktails must be deciphered and illustrated carefully^{1,3-5}.

Evolution of emergent and reemergent transmissible and zoonotic diseases crosslinked with stress adaptation and stress hardening complex network stimuli that hits and storms with unprecedented or unexpected severity in macro and microbiome, environment, human and animals. Exaggerated and continuous contamination and pollution with forbidden chemical residues cascaded by integral genes sharing behaviors of antibiotics resistance that are vertically and horizontally resident and transmitted within the food chain, population and environment ecosystems can assist dramatically in denominator outbreaks. Establishing, educating and proceeding of knowledge about these sophisticated risks with international hygienic agencies like CDCs and FDA could reduce these emergencies. Besides, new formulations and synthesis of new generations of antimicrobial agents cascaded by the rapid evolution of microbial resistance issues due to quorum sensing behaviors could exaggerate the hygienic situation. The frequency and distribution pattern of such forbidden struggling in food-producing livestock could detrimentally and adversely affect the food chain with expensive processing achievement in man and animals^{1,3-5}.

Host-specific receptor interaction could promote efficacy for unipotent phage or pluripotent groups. Therefore, each phage or family's specificity and sensitivity required understanding each target's physiology and interactions with the

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host in selective toxicity caution. Genetically, well-equipped phages display their unique envelope pore-forming units endolysins enzymes with fusion power to target pathogen and then biodegradation of its network. During entry of the phage genome inside the cytoplasmic ecosystem of the target, their segregation ecomap and dependency either proliferate without lysis of target as temperate or proliferate and lyse the target as a lytic module or integrate without increase with the target genome to become prophage entity^{1,3-5}.

Integrated virions change the genetic ecosystem of the target to become more powerful and stable against invaders, even lytic phages, with the development of target immune barriers such as intelligent clustered regularly interspaced short palindromic repeats (CRISPR) that modulate trusted platform module resident within. Phages are diverse and versatile in their workstation to be important in the biodegradation of toxic chemical residues within the environment. The metagenomic Era of these intelligent functional, unique nanobodies makes them an inexhaustible atomic biofuel. Chainsaw puzzles are present in the dynamic recovery of bacteriophages from wastewater or man or animal residues^{1,3-5}, but they were literally recovered from the dairy chain in Baghdad^{6,7}.

During recovery of lytic bacteriophages cocktails from dairy chain against MRSA strains, these recovered phages are redirected to check out their efficacy module against multi-stress resistant *C. albicans* recovered together with MRSA and VRE from the same resident built-in slime. Broad-spectrum action potential threshold activity displayed for these recovered lytic bacteriophages. Redirected discovered a special topic in this verified project to innovate a new intelligent strategy to overcome these forbidden struggling bioterror entities inside the food chain as a modified regime of hazard analysis critical control points cascaded by *Exodia Mycophages* against Chimera *C. albicans*^{6,7}. Depending on this accumulative knowledge, we decided to build up a designed project aimed, objected and redirected to the hygienic application of recovered bacteriophages against multi-stress resistant chimeric *C. albicans*.

Materials and methods

Special Topics built-in design

An authenticated modified and verified cascaded series enrollments were dependent for establishing a net framework built-in design⁹⁻¹⁸ in which two-hundred and twenty-five pooled samples were collected and verified from sectors of Al-Fudhaliyah, Al-Sadrya and Abu-Ghraib from January to March (2022). An authenticated, modified and verified cascaded series for isolation, identification and confirmation depended on this torment. Cows of raw milk, fresh yogurt, and fresh soft cheese are twenty-five units from each sector for each brand within specified month (a total of seventy-five per episode). Clinical signs with DNA dependent California kit reveal and confirm mastitis. Enrollment of multi-stress resistant *C. albicans* was verified by *C. albicans* chrome agar, 16S rRNA PCR, sensitivity pattern to azoles, microtitre plate assay and plasmid Congo red agar for assessment of biofilm, thermotolerance pattern to pasteurization regime and tolerance pattern to ultraviolet irradiation. Freshly prepared Bacteriophages cocktails (MacFarland titer 109 PFU.ml-1) were justified and achieved from consecutive synchronous work on Methicillin-re-

sistant *Staphylococcus aureus*⁶ and Vancomycin-resistant Streptococci (VRE)⁷. Chi-square analysis was dependent on the verification of data¹⁹.

Results and discussion

Colloquially frequency and distribution pattern unveiled ecomap segregation of four forbidden recovered super isolates of PCR primed *C. albicans* from two-hundred and twenty-five pooled samples (1.77 %) resident in March with multi-stress recalcitrant biofilm behaviors as two super forbidden isolates (2.66 % and entirely 0.88 %) recovered from raw milk and fresh yogurt resident in Abu-Ghraib, one super forbidden isolate (1.33 % and completely 0.44 %) retrieved from fresh yogurt resident in Al-Fudhaliyah and one super forbidden isolate (1.33 % and entirely 0.44 %) recovered from fresh soft cheese resident in Al-Sadrya. Potent lytic bacteriophages were recovered from fresh yogurt in Abu-Ghraib and verified by plaques forming technique on Muller-Hinton agars against MRSA with scanning electron micrographs and on Vancomycin-resistant Streptococci (VRE). The plaques technique achieved an effective termination module of these forbidden recovered entities throughout droplet and pour plate procedures. Configured tables (Table 1 & Table 2) and photographs decipher and illustrate cascaded events (Figure 1).

Stress adaptation with phase variation epigenetic tolerance behavior upgraded to stress hardening in genetically well-equipped multi-stress resistant forbidden opportunistic entities within an enclosed electromagnetic environment of biofilm with integrated genes sharing strategies and quorum sensing behaviors in two forbidden biohazards and bioterror recovered resident invaders MRSA, VRE and *C. albicans* from food chain inside Baghdad ecosystem^{6,7}. Such struggling forbidden and biohazard entities resident within the food chain in Baghdad were encountered in the previous novel works²⁰⁻²⁹.

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Biodiversity versatile interactions among diverse Eco biota of bacteria, fungi, and viruses within an enclosed microbiome ecosystem are generally called a rotifer entity. Various complex networks reside among and within these denominators to share configured lifestyle behaviors. Because of these rebuilding and remixing machines strategies cascaded by the evolution of forbidden chimeric genes verification module from which resistance problems to different stressors and cross hardening even not encountered else causing programming to reemerge as biohazard terror^{28,31}.

Frequency and distribution pattern of aggressive *C. albicans* and *Aspergillus* forbidden denominators predispose to upsurge indisposition and transience in immune deviated individuals. Resident resistance pattern in these infectious entities remains a problematic issue. To motivate cornersto-

ne therapy, selective verification of new combat strategies in programmed hazard and biohazard analyses critical control points must be transferred. *Lytic Mycophages* is a novel and unique hygienic design to overcome and combat life-terminating bioterror mycosis. Justified and daring publications must put the segregation benefits for these now-needed weapons. Information about hygienic certification and the application of these nanobodies for therapy and decontamination strategies is still under warranty³¹.

Metagenomic verified Era of single or double-stranded RNA or DNA Lytic Mycophages display and segregated their ancestors into more than ten relations or enrollments and over ninety species in dependence of the international committee of viral-based taxonomy. To date, the mainstream of categorized Mycophages own metagenomic double-stranded RNA. These justified Mycophages segregated into four enveloped capsid families: *Partitiviridae*, *Totiviridae*, *Chrysoviridae*, and *Reoviridae*, with one none, enveloped ancestor, *Hypoviridae*. Activation of genes responsible for triggering programmed cell suicide arises during heterokaryon between a fungus and lytic phages, while lysogeny arises during incompatible heterokaryon³².

Conclusions

Multi-stress resistant *C. albicans* that are resistant to different antifungal agents with their genetic tolerance plasticity to thermal pasteurization decontamination module as well as to ultraviolet irradiation hurdle strategy recovered from raw milk (mastitis), yogurt and soft cheese with versatile phenotypes resident in topic sectors of Abu-Ghraib, Al-Fudhaliyah and Al-Sadrya in Baghdad. From the other side of trueness,

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Territory	Pooled Brand	Super <i>C. albicans</i>	Recovery Ecomap %	
			Pooled 75	Pooled 225
Abu-Ghraib	75	2 ^A	2.66 ^{Aa}	0.88 ^{Ab}
Al-Fudhaliyah	75	1 ^B	1.33 ^{Ba}	0.44 ^{Bb}
Al-Sadrya	75	1 ^B	1.33 ^{Ba}	0.44 ^{Bb}
Total	225	4	5.33	1.77

Table 1. Recovery ecomap of segregated PCR primed multi stress resistant *C. albicans*.

Territory Isolate	<i>C. albicans</i> MacFarland Logs	Bacteriophages MacFarland Logs	<i>C. albicans</i> Reduction Logs	Zone of Inhibition (mm)
Abu-Ghraib	10 ⁵ CFU.ml ⁻¹	10 ⁹ PFU.ml ⁻¹	4-5 ^A	25-40 ^A
Al-Fudhaliyah			4 ^B	19-22 ^B
Al-Sadrya			3-4 ^C	17 ^C

A,B, C: Indicate significant differences vertically between variants at level (0.5 > count > 0.5 log).

Table 2. Efficacy module of Bacteriophages as Mycophages.



Figure 1. Large zones of inhibition of MRSA phages against multi-stress resistant *C. albicans* on Muller-Hinton agar after 24 hours.

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