

FIRAS DIBAN

Born in Damascus-Syria on April 25, 1990

Current position: Research Fellowship at the Department of Pharmacy,

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Title: "*Studio dell'attività antimicrobica e antivirulenza di composti bioattivi e nuove tecnologie in ceppi resistenti di Helicobacter pylori.*" – area 06 GSD 06/MEDS-03 (ex. 06/A3) SSD MEDS-03/A (ex. MED/07). CUP n.: D53D23001880006

"*Study of the antimicrobial and anti-virulence activity of bioactive compounds and new technologies in resistant strains of Helicobacter pylori*"

(Prof. Mara Di Giulio), at the Department of Pharmacy, Laboratory of Microbiology University "G.d'Annunzio", Chieti-Pescara.

During the last year, I performed several tests regarding the fellowship project.

In details:

RNA isolation in order to detect the gene expression of main virulence factors of *H. pylori* after the application of sub-MIC concentrations of the resveratrol derivatives. This test was performed on reference and clinical strains.

1. Evaluation of antimicrobial activity of RSV derivatives against *H. pylori* strains.
2. Gene expression of the main virulence factors of *H. pylori* after treatment with new bioactive compounds.
3. Antibacterial test regarding new compounds was performed in terms of MIC, MBC determination against reference and clinical strains of *H. pylori*.

- I published 4 articles (first name in 1 article) during the fellowship (1 July 2024- today):

1. Recinella, L., Pinti, M., Di Lodovico, S., Brenciani, A., Giovanetti, E., **Diban, F.**, Di Giulio, M., Brunetti, L., Leone, S. A New Bromelain-Based Polyenzymatic Complex Plus N-Acetylcysteine: A Promising Approach for the Treatment of Urinary Tract Infections. **2025**, *IJMS*. (accepted for publication)
2. **Diban, F.**, Di Fermo, P., Di Lodovico, S., Petrini, M., Pilato, S., Fontana, A., Pinti, M., Di Giulio, M., Lence, E., González-Bello, C., Cellini, L., D'Ercole, S. Methylglyoxal Alone or Combined with Light-Emitting Diodes/Complex Electromagnetic Fields Represent an Effective Response to Microbial Chronic Wound Infections. *Antibiotics*, **2025**, 14(4), 396. <https://doi.org/10.3390/antibiotics14040396>
3. Di Fermo, P., **Diban, F.**, Ancarani, E., Yu, K., D'Arcangelo, S., D'Ercole, S., Di Lodovico, S., Di Giulio, M., Cellini, L. New commercial wipes inhibit the dispersion and adhesion of *Staphylococcus aureus* and *Pseudomonas aeruginosa* biofilms. *J Appl Microbiol.* **2024** Sep 2;135(9):lxae234. <https://doi.org/10.1093/jambio/lxae234>
4. D'Arcangelo, S., Di Fermo, P., **Diban, F.**, Ferrone, V., D'Ercole, S., Di Giulio, M., Di Lodovico, S. *Staphylococcus aureus*/*Staphylococcus epidermidis* from skin microbiota are balanced by

Pomegranate peel extract: An eco-sustainable approach. *PloS one*. 2024 19(8), e0308211.
<https://doi.org/10.1371/journal.pone.0308211>.

- And there is another article under revision.

Other activities:

- I performed tests regarding the antimicrobial activity of disinfectants following the European Normative.
- I attended 6th International Caparica Conference in Antibiotic Resistance (IC2AR) 2024, Caparica, Portugal 08-12/09/2024 and I was an author of the winning poster (best poster award)
- I assisted in the practical part of Microbiology lessons for students of CTF, Farmacia and MAP (Microbiologia applicata).
- I participated in a contest:
Bando di Concorso Comitato Salute FEEM "La Salute nel contesto della Transizione Energetica"
- I attended a webinar organized by the American Society for Microbiology entitled: "ASM Biofilmar" on 23/04/2025.

Terza missione:

- Notte dei ricercatori 2024.
- Accepted patent titled "Composizione per il trattamento delle infezioni a carico delle lesioni cutanee" 14/11/2024.

Chieti 09/05/2025

Firas Diban

