

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.

Conferences:

1. **F. Diban**, M. Pinti, S. Di Lodovico, P. Di Fermo, B. De Filippis, E. Di Campi, M. Di Giulio. Resveratrol Derivatives and Their Impact On *Helicobacter Pylori* Infection. Congresso Nazionale della Nuova Società Italiana di Microbiologia Farmaceutica ETS 2025, Messina, Italia 13-14/06/2025. **Presentation**
2. S. D'Ercole, TC. Dotta, P. Di Fermo, F. Diban, L. Cellini, M. Petrini. Antimicrobial and anti-biofilm effects of eight commercially available mouthwashes against *Streptococcus mutans* strains. Congresso Nazionale della Nuova Società Italiana di Microbiologia Farmaceutica ETS **2025**, Messina, Italia 13-14/06/2025. **Poster**
3. M. Pinti, **F. Diban**, S. Di Lodovico, S. D'Arcangelo, S. Pillitteri, M. Ditrani, M. Di Giulio. New Bromelain-Based Polyzymatic Complex with N-Acetylcysteine to treat Urinary Tract Infections. Congresso Nazionale della Nuova Società Italiana di Microbiologia Farmaceutica ETS **2025**, Messina, Italia 13-14/06/2025. **Presentation**
4. D'Ercole S., Di Fermo P., **Diban F.**, Pinti M., D'Amico E., Cellini L., Petrini M. Eco-sustainable technologies to counteract the resistant yeast biofilm infections without affecting the human gingival fibroblasts. 6th International Caparica Conference in Antibiotic Resistance (IC2AR) **2024**, Caparica, Portugal 08-12/09/2024. **Poster**
5. D'Arcangelo S., Di Lodovico S., **Diban F.**, Pinti M., Di Campi E., D'Ercole S., Di Giulio M. Pomegranate peel extract: an eco-sustainable tool to counteract skin resistant pathogenic *Staphylococci*. 6th IC2AR **2024**, Caparica, Portugal 08-12/09/2024. **Poster (Best poster award)**

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 participated in several conferences to disseminate the results of the conducted experiments.
- 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 Biofilmair" on 23/04/2025.

During the second year of the fellowship (1 July 2025 - Present), several experiments regarding the virulence gene profile of clinical strains of *H. pylori* were conducted.

In addition, several experiments were performed to quantify new Resveratrol derivatives using spectrophotometric methodology. These experiments aimed to find the formula to calculate the quantity of these derivatives in the permeability test through a mucin layer.

The Mucin permeability test was designed to mimic the hypothetical situation in the stomach environment, where resveratrol and its derivatives have to pass through the mucin layer to reach the infection sites of *H. pylori* in the stomach epithelial cells. The *in vitro* model was realized in a 6-well Transwell plate, and the mucin layer in the upper compartment, while the quantity of resveratrol derivatives was evaluated in the lower compartment. The results of these experiments were presented at national and international congresses and will be published in a peer-reviewed journal.

I performed a laboratory and seminar activity within the joint course “ Pharmaceutical Manufacturing Excellence” between “G. d’Annunzio” of Chieti-Pescara (Italy) and University of Alexandria (Egypt).

I published 1 article during the second year of fellowship (1 July 2025- present):

1. Di Lodovico S, De Pasquale V, Nocera FP, Petrini M, Di Fermo P, **Diban F**, Pinti M, De Martino L, Tafuri S, Cellini L, Di Giulio M. Recombinant NK1 Protein and LEDs: An Innovative Strategy to Counteract Resistant *Staphylococcus pseudintermedius* and *Pseudomonas aeruginosa* Strains. Probiotics and Antimicrobial Proteins. **2025 Aug** 11:1-3. <https://doi.org/10.1007/s12602-025-10702-3>

Conferences:

1. M. Pinti, F. **Diban**, P. Di Fermo, S. Di Lodovico, E. Di Campli, S. D’Ercole, L. Cellini and M. Di Giulio. The role of vitamin C in the *Helicobacter pylori* dormant state. 38th Workshop of the European Helicobacter and Microbiota Study Group, **September 11 - 13, 2025**, Rome, Italy.

Poster

2. **F. Diban**, M. Pinti, S. D’Ercole, P. Di Fermo, B. Di Filippis, E. Di Campli, Luigina Cellini and M. Di Giulio. The effect of Resveratrol-based compounds on *Helicobacter pylori*. 53th Congress of Società Italiana di Microbiologia **2025**, Catania, Italy. 19-22/09/2025. **Poster**

Terza missione:

- Notte dei ricercatori 2024 e 2025.
- Accepted patent titled “Composizione per il trattamento delle infezioni a carico delle lesioni cutanee” 14/11/2024.

Chieti 12/11/2025

Firas Diban

