Anthracycline biosynthesis in Streptomyces: engineering, resistance and antimicrobial activity

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Curriculum vitae

Mandy Beatrix Hulst was born in Rotterdam, The Netherlands on the 9th of March, 1994. After attending high school at the Comenius College in Capelle aan den IJssel and graduating in 2011, she decided to take a gap year to participate in a high school exchange program to Idaho, USA.

In 2012, she started the BSc Life Science & Technology, a shared program of Delft University of Technology (TU Delft) and Leiden University. During her BSc studies, she performed an internship in the Industrial Microbiology group at TU Delft, focusing on free energy conservation in yeast under the supervision of dr. Robert Mans and prof. Ton van Maris. After obtaining her BSc degree in June 2015, she continued her studies with the MSc Life Science & Technology at TU Delft, specialising in Cell Factory and Biochemical Engineering. She completed an extracurricular exchange semester to the University of New South Wales (Sydney, Australia). During a second internship in the Industrial Microbiology group at TU Delft, she studied the physiology of yeast through chemostat bioreactor cultivations, supervised by dr. Xavier Hakkaart and prof. Pascal Daran-Lapujade. She concluded her MSc studies with an industrial internship at Chr. Hansen (Hørsholm, Denmark), focusing on extending the shelf-life of yogurt. She obtained her MSc degree in February 2018 with the distinction *cum laude*.

In August 2018, she joined the research group of prof. Gilles van Wezel at the Institute of Biology at Leiden University as a research analyst, where she studied heterologous antibiotic production in *Streptomyces coelicolor*. During this period, she spent two months at the research institute SINTEF (Trondheim, Norway) working on (micro)bioreactor cultivation of streptomycetes under the supervision of dr. Alexander Wentzel and dr. Dino van Dissel. In July 2019, Mandy started her PhD project, focusing on anthracycline biosynthesis in *Streptomyces* under the joint supervision of prof. Gilles van Wezel and prof. Sjaak Neefjes (Leiden University Medical Center). The work on this topic is presented in this thesis. As from May 2024, Mandy works as Fermentation Engineer at Twig Bio Limited in London, UK.

Publications

Hulst, M.B., Zhang, L., van der Heul, H.U., Du, C., Elsayed, S.S., Koroleva, A., Grocholski, T., Wander, D.P.A., Metsä-Ketelä, M., Neefjes, J.J.C., & van Wezel, G.P. (2024). Metabolic engineering of *Streptomyces peucetius* for biosynthesis of *N*,*N*-dimethylated anthracyclines. *Front. Bioeng. Biotechnol.*, 12, 1363803.

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