# Systematics, epidermal defense and bioprospecting of wild orchids

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# References

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# Curriculum Vitae

Richa Kusuma Wati was born on August 17th, 1984, in Malang, Indonesia, and grew up in East Java Province. Her passion for chemistry in high school led her to study Food Technology at Brawijaya University, Indonesia, where she obtained her bachelor's degree in 2006. Just before graduation, she was granted a double-degree scholarship from KEMDIKBUD. She completed her M.Sc in 2009 from Brawijaya University, Indonesia, and Mae Fah Luang University, Thailand, with publishing three papers about the purification of trypsin inhibitor from legumes to preserve fish products. After her graduation, she was accepted in Bogor Botanic Gardens-LIPI as a researcher. For her first task she was involved with orchid collections in the gardens. She met her mentor, Sofi Mursidawati, and worked together to manage the orchid collections. In 2015, they published an orchid catalog of the garden, fifteen years after the publication of the first catalog. During this time, she became interested in orchids and this led her to study orchids for her PhD project. Since November 2015, after receiving a scholarship from LPDP, she started her PhD research at Naturalis Biodiversity Center and Leiden University under the supervision of Prof. Barbara Gravendeel and Prof. Erik Smets. She will continue to work as an orchid researcher in Bogor Botanic Gardens. Her main future research projects will be focused on orchid ex-situ conservation, saving the endangered orchid species of Indonesia by applying genomics, taxonomy, systematics, and bio-prospecting. Richa is also interested in understanding orchid-pollinator-herbivore interactions.

# List of Publications

**Wati, R.K**., de Graaf, E., Bogarin, D., Heijungs, R., van Vugt, R.R., Smets, E.F. & B.Gravendeel. 2021.Antimicrobial activity of necklace orchids is phylogenetically clustered and can be predicted with a biological response method. Frontiers in Pharmacology, section Ethnopharmacology (in press).

**Wati, R.K**., van Vugt, R.R. & B. Gravendeel. 2018. A Linnaeus NG interactive key to the species of Glomera (Orchidaceae, Coelogyninae) from Southeast Asia. Phytokeys 110:9

Gravendeel, B., Bogarin, D., Dirks-Mulder, A., **Wati, R.K**., & D. Pramanik. 2018. The orchid genomic toolkit. In: Proceedings of the 18th EOCCE-What future for orchids, pp.72-76. Cahiers De La Société Française D'orchidophilie 9:73-77.

Irawati, I., Witjaksono, W., Nugraheni, K.U., Isnaini, Y., Mursidawati, S., Handini, E., Garvita, R.V., Leksonowati, A., Rahayu, E.M.D., & **R.K Wati**. 2017. In vitro culture of Amorphophallus titanium (Becc.) Becc. Ex Archang at Bogor Botanic Gardens. Buletin Kebun Raya 20 (1):33-42.

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**Wati, R.K.**, Theppakorn, T., Benjakul, S., & S. Rawdkuen.2010. Trypsin inhibitor from 3 legume seeds: fractionation and proteolytic inhibition study. Journal of Food Science 75(3): C223-C228.

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# PE&RC Training and Education Statement

With the training and education activities listed below the PhD candidate has complied with the requirements set by the C.T. de Wit Graduate School for Production Ecology and Resource Conservation (PE&RC) which comprises of a minimum total of 32 ECTS (= 22 weeks of activities)

**Review of literature (4.5 ECTS)**

- Phylogenetic prospecting of Indonesian Coelogyninae (Orchidaceae) used as traditional antimicrobials

**Post-graduate courses (7.8 ECTS)**

- Metabolomics; IBL (2016)
- Phylogenetics; Wageningen University (2018)
- Introduction to ArcGIS; Leiden University & Naturalis (2018)

**Laboratory training and working visits (0.3 ECTS)**

- GGO Training for ML2 lab; Leiden University (2016)

**Competence strengthening / skills courses (1.5 ECTS)**

- Time management, self- management; Leiden University (2017)
- Effective communication; Leiden University (2017)
- Communication in science; Leiden University (2017)

**Scientific integrity / ethics in science activity (0.3 ECTS)**

- On being a scientist; Leiden University (2016)

**Discussion groups / local seminars / other scientific meetings (6.6 ECTS)**

- Learning from nature, learning from our ancestors, from tradition to evidence-based medicines (2016)
- Endless forms (2016-2019)

**International symposia, workshops and conferences (5.1 ECTS)**

- 18th European orchid council conference and exhibition; Paris (2018)
- 2nd Conference of the Netherlands Society for Evolutionary Biology (NLSEB); Wageningen (2019)
- 7th International orchid conservation congress; Royal Botanic Garden Kew (2019)

**Societally relevant exposure (1 ECTS)**

- Presentation; WEO (Werkgroep Europese Orchideeën), Maarn (2019)

**Lecturing / supervision of practicals / tutorials (0.6 ECTS)**

-Biology of Orchids

**BSc thesis supervision (12 ECTS)**

- Medicinal properties of Indonesian Coelogyne
- Antimicrobial properties of Indonesian Coelogyninae on antibiotic-resistant bacteria
- Bioprospection of Indonesian medicinal orchids (Coelogyninae) seems promising for finding potential new species for alternative drug discovery
- The epicuticular properties of orchids and their effect for snail herbivory activity