

# The Symposium Programme

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## Sat, 13 April 2024

Arrival | Evening registration

## Day one - Sun, 14 April 2024

08:30	Registration, continued
09:30	Welcome: Representatives of AvH, DAAD, IGZ, Cairo University
10:00	<b>Opening keynote address:</b> Rhizosphere - A one health concept for coevolution of diversity and interaction of microbes with plants for sustainable agriculture ( <b>Anton Hartmann</b> ) (30 min.)
10:30	Tea break 1 / Continue registration
11:30	<b>Session 1: The journey from rhizosphere to microbiome: The history and development: (20 min. each)</b> <ul style="list-style-type: none"><li>• The journey of the microbiota from soil to plant and human holobionts (<b>Gabrielle Berg</b>)</li><li>• The role of microbial inheritance in the coevolution of the plant microbiome (<b>Ahmed Abdelfattah</b>)</li></ul>
12:10	<b>Session 2: High-resolution of core microbiota and their functions: New generations of OMICS technologies and bioinformatics (20 min. each)</b> <ul style="list-style-type: none"><li>• Microbiome networks: Taking microbiome research to the strain level (<b>Florian Fricke</b>)</li><li>• Application of Omics approaches for a better understanding of soil-borne plant diseases (<b>Katja Wizel</b>)</li><li>• Inferring tailored plant-beneficial Synthetic Communities from AI-driven marker-Taxa using MORPHEUS (<b>Sascha Patz</b>)</li></ul>



- Chronic exposure to pesticides disrupts the bacterial and fungal co-existence and the cross-kingdom network characteristics of honey bee gut microbiome (**Yahia Alnagar**)
- Plant metabolomics, a tool for quality assurance and discovery of bioactive compounds (**Rasha Hanafi**)
- Exploring the molecular interplay in fungal endophyte-grass association under salt stress (**Bliss Furtado**)

14:10

Tea break 2

15:10

### Session 3: The plant microbiome: Recent updates on *in vitro* culturomics and domestication approaches (20 min. each)

- Culturomics of the plant microbiome: Developments and future prospective (**Nabil Hegazi**)
- The plant microbiome as a resource for oxidative biocatalysts (**Wolfgang Liebel**)

16:00

### Posters - Group 1:

Short oral presentations related to topics of sessions 1,2 and 3 (7 min + 3 min discussion for each poster)

- Microbiota of *S. europaea*: *in vitro* domestication and microbiome analysis (**Tarek Ragab**)
- Vegetables (Veggie-discs): A new approach of *in situ similis* culture strategy for exploring vegeable microbiota (**Randa Abdel-Fattah**)
- Illumina MiSeq analysis validated the appropriateness of leaf-based culture media as a potential culturomic strategy of plant microbiota (**Rahma Nemr**)
- Culturable communities of bacteria associated with macrophytes along shores of river Nile islands-Egypt (**Amal Othman**)
- Integrative analysis of host Omics and microbiome data to identify common pathways and biomarkers of Type2-diabetes (**Hagar Khalil**)

19:00

Dinner



## Day two - Mon, 15 April 2024

8:30	Visit to the Giza Pyramids area
13:00	<p><b>Session 4: Future prospects and challenges of SynCom <i>in situ</i> delivery and modification under greenhouse and field conditions (20 min. each)</b></p> <ul style="list-style-type: none"><li>• Advances in understanding molecular mechanisms of endophyte-plant interactions (<b>Barbara Reinhold-Hurek</b>)</li><li>• Microbial Genomics and Metagenomics for Plant Health and Disease (<b>Jihyun Kim</b>)</li><li>• Improved salt tolerance in tomato by harnessing synthetic microbial communities and microbiome transplantation derived from plants naturally adapted to hypersaline habitats (<b>Mohamed Abdelfadil</b>)</li><li>• <i>In vitro</i> domestication of halophyte microbiota for future SynCom applications. (<b>Nada Moner</b>)</li></ul>
14:20	Tea break
15:00	<p><b>Session 5: Plant microbiome mechanisms to alleviate biotic and abiotic stresses towards increasing sustainability and productivity of future stressed-agriculture (20 min. each)</b></p> <ul style="list-style-type: none"><li>• Impact of farming practice on soil and rhizosphere microbiomes in agroecosystems (<b>Rita Grosch</b>)</li><li>• Drought protection of maize plants through inoculants (<b>Kornelia Smalla</b>)</li><li>• Effect of mycorrhizal fungi on healthy and PVY-infected <i>Solanum tuberosum</i> L. plants (<b>Katarzyna Hryniewicz</b>)</li><li>• Plants differentiate their response to beneficial bacteria (<b>Adam Schikora</b>)</li><li>• Dissecting fruit tree microbiota to develop practical applications to increase pre-and post-harvest crop management (<b>Francesco Spinelli</b>)</li><li>• Plant secondary defense and signaling metabolites drive recruitment of a balanced leaf bacteriome (<b>Matthew Agler</b>)</li></ul>



17:00

## Posters - Group 2:

Short oral presentations related to topics of sessions 4, 5, 6 (7 min + 3 min discussion for each poster)

- Use of zinc oxide nanoparticles and salicylic acid enhance growth of cumin in wilt disease infected soil (**Mohamed Mohamed**)
- Soil sickness: Occurrence of mutualists vs. pathogenes in red clover & alfalfa (**Felix Beske**)
- Exploring evolutionary trajectories: Unveiling *Pseudomonas aeruginosa* resistome as a plant and soil pathogen (**Marwa Ahmed**)
- Assessment of biodiversity and symbiotic efficiency of rhizobia nodulating peanut in major crop producing fields in Egypt (**Haitham Shawky**)
- Efficiency and kinetics of copper and zinc biosorption by *Enterobacter cloaceae* and *Klebsiella oxytoca* associated to *A. macrostachyum* indigenous to Manzala lake environment (**Nesma Youghly**)
- *In-silico* identification of putatively functional intergenic small ORF in the cucumber genome and their predicted response to biotic and abiotic stresses (**Esraa Ahmad**)
- Xerophytes-associated microbiota in arid deserts: *in vitro* cultivation and potential PGP functions (**Mahmoud Abdelwahab**)
- Genome mining, plant growth-promoting potentials of *Escherichia coli* FACU isolated from heavy metal polluted soil (**Asmaa Halema**)

19:00

Dinner



## Day three - Tue, 16 April 2024

8:30

### Session 6: The plant microbiome structure/architecture for achieving resilient plants in sustainable crop production (20 min. each)

- Microbes - from field to field (**Helmut Junge**)
- Agronomic measures to support microbial activities and functions in soil with focus on plant P nutrition (**Bettina Eichler-Löbermann**)
- Deciphering the oilseed rape seed microbiome: Impacts of field and host-related factors, nitrogen fertilization and seed aging (**Brigit Wassermann**)
- Re-engineering the rhizosphere microbiome to improve maize yield (**Ngosong Christopher**)
- Microbial biofertilizers in Latin America: Present status and perspectives (**Martha Isabel Gomez Alvarez**)
- Hydrogel capsules as carriers for growth-promoting bacteria consortia in bovine compost enrichment for enhancing *Avena* (*Avena sativa*) yields (**Fredy Mauricio Cruz Barrera**)
- Formulation and application of bio-preparates for improving desert agriculture production: Twenty years of experience in semi-arid deserts of north Sinai, Egypt (**Mohamed Abbas**)

10:50

Tea break 1

11:30

### Session 7: Alexander von Humboldt Stiftung Forum

- Alexander von Humboldt Stiftung: EXZELLENZ VERBINDET – Be Part of a Worldwide Network. (**Mohamed El-Fouly, President of the Humboldt Alumni Association in Egypt**) (10 min.)
- Networking strategies within our Humboldt family in Egypt: Beyond the academic bonds (**Ebaa M. El-Hossary, AvH Ambassador Egypt**) (10 min.)
- AvH initiative: Africa- climate change challenges and solutions:
  - A review on the effects of climate change on soil microbial communities (**Mostafa Fouda, Minister Advisor on Biodiversity and the National Focal Point for CBD,**



**Egypt) (10 min.)**

- Does climate change have an effect on food security in Africa? (**Tonjock Rosemary –Kinge**) (20 min.)
- Maintaining adaptive potential plant species under prospected climate change: Case studies (**Mohamed Zaghloul**) (20 min.)
- Egyptian-German scientific collaboration under the umbrella of Alexander von Humboldt Stiftung: A success story (**Silke Ruppel**) (20 min.)

13:00

Tea break 2

14:00

**Session 8: AvH meets with DAAD: Young Scholar Forum: moderated by DAAD-sponsored German professors Kornelia Smalla and Wolfgang Liebel**

- The Egyptian-German young science Day 5: Developments and progress of DAAD-student activities since 2012: A review (**Mervat Hamza**) (20 min)
- Juniors presentations:
  - The Plant microbiome: Mediated strategies to support tomato production-A graduate perspective (**HISEN Group**) (20 min.)
  - A comparative outlook of tomato microbiota based on culturability and metagenomics approaches (**Omar Shahat, A graduation project**) (10min.)
- DAAD-COSIMENA-project: Objectives and programs (20 min)
- Opportunities and programmes offered by DAAD (**Representatives of DAAD-Cairo Office**) (20 min.)

15:30

**Session 9:**

- Kolleg discussions and conclusions
- Humboldt Research Hub: The plant microbiome research/ development and sustainable agriculture in Africa (initiate and apply to AvH)
- Posters' prizes
- Our Luminaries: A word of gratitude

19:00

Dinner and farewell



**Wed, 17 April 2024**

Departure

Departure Or:

Optional extra day/days (upon request, covered by the participants and arranged by the tour agency) to visit:

The Giza Grand Museum, Giza Pyramids area, Saqqara Necropolis, National Museum, Museum of Civilizations, the Holy City and Old Cairo.



*The Scribe V Dynasty*

