

## Curriculum Vitae

**Dr. Nehaya Al-Karablieh**

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### Summary:

- Postdoctoral Fellow: collaborative project (Bioactive compounds from Algae) between Laboratory of Molecular Microbiology (Jacobs University Bremen) and (Phytolutions GmbH, Germany). The project deals with extraction of different bioactive compounds (anti-viral, pigments and polysaccharide) from different algal species
- PhD degree in the Laboratory of Molecular Microbiology (Jacobs University Bremen, Germany) and having specialization in molecular biology techniques in plant-microbe interaction studies and phytopathology. My current work is focused on the TolC protein of *Erwinia amylovora* and its role in resistance mechanism against plant derived antimicrobial compounds, plant colonization, and protein secretion.
- M.Sc in Phytobacteriology (University of Jordan, Amman, Jordan). Detection and identification of crown gall bacteria (*Agrobacterium tumefaciens*) by polymerase chain reaction.

### Professional Qualification:

**Postdoctoral Fellow** (1<sup>st</sup> Nov. 2009- 31<sup>st</sup> Aug.2011): Phytolutions GmbH, Guest Scientist at Jacobs University Bremen gGmbH.

**Postdoctoral Fellow** (1<sup>st</sup> May 2009-31<sup>st</sup> Oct.2009): Jacobs University Bremen gGmbH.

**PhD** (Molecular Microbiology, 2009): School of Engineering and Science, Jacobs University Bremen, Germany.

**M.Sc** (Masters of Sciences, 2002): Plant bacteriology, Faculty of Agriculture, University of Jordan, Amman, Jordan.

**B. Sc** (Bachelors of Sciences, 1998): Plant Protection, Faculty of Agriculture, University of Jordan, Amman, Jordan.

### Core Project Details:

#### Postdoctoral Fellow: Extraction of Bioactive compounds from Algae.

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| Laboratory         | Laboratory of Molecular Microbiology, Jacobs University Bremen, Germany  |
| Project Supervisor | Prof. Matthias S. Ullrich (Jacobs University Bremen gGmbH)<br>Dr. Claudia Thomsen (Phytolutions GmbH)  |
| Project Overview   | The project deals with extraction of different bioactive compounds (anti-viral, pigments and polysaccharide) from different algal species, participating in graduate students teaching and supervising masters and PhD students. |
| Duration           | May 2009 to August 2011.   |

#### PhD thesis title: Functional characterization of the outer membrane protein TolC in the fire blight pathogen *Erwinia amylovora*.

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| Laboratory         | Laboratory of Molecular Microbiology, Jacobs University Bremen, Germany   |
| Project Supervisor | Prof. Matthias S. Ullrich   |
| Project Overview   | The project involves <i>tolC</i> mutagenesis in <i>Erwinia amylovora</i> and <i>Escherichia coli</i> . Study the role of TolC in resistance toward phytoalexins and in virulence in <i>E. amylovora</i> . Heterogeneous expression of AcrAB-TolC in <i>E. amylovora</i> and <i>E. coli</i> and studying the substrate spectrums of AcrAB-TolC in both organisms.<br><b>Collaboration work:</b> Identification the regulator of <i>lscA</i> (third copy of <i>lsc</i> in <i>Pseudomonas syringae</i> pv. <i>glycinea</i> PG4180 which is close to enterobacteriaceae <i>lsc</i> and is not expressed in <i>Pseudomonas syringae</i> pv. <i>glycinea</i> PG4180). |

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|          | <b>Collaboration work:</b> <i>LuxS</i> mutagenesis and investigate the influence of autoinducer2 on virulence of <i>Erwinia amylovora</i> . |
| Duration | April 2005 to February 2009.  |

**Master's thesis title:** Detection and identification of crown gall bacterium (*Agrobacterium tumefaciens*) by polymerase chain reaction.

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| Laboratory         | Plant Bacteriology Lab. University of Jordan.  |
| Project Supervisor | Dr. Hamid Khlaif   |
| Project Overview   | Isolation of <i>Agrobacterium tumefaciens</i> from different hosts; pome fruit, stone fruit, grapevines and others and characterization of the isolates based on 16S-PCR-RFLP.<br>Detection of pathogenic <i>Agrobacterium tumefaciens</i> in diseased and symptomless plant materials based on PCR amplification of <i>tmr</i> on Ti-plasmid. |
| Duration           | As a part of M.Sc dissertation the experiments were carried out within the time frame of one and half year.  |

**Academic Qualification:**

| Degree           | University/ Board             | Grades/ Percentage | Year of Passing |
|------------------|-------------------------------|--------------------|-----------------|
| PhD              | Jacobs University Bremen      | Excellent          | 2009            |
| M.Sc.            | University of Jordan          | Very good          | 2002            |
| B.Sc.            | University of Jordan          | Very good          | 1998            |
| Secondary school | Ministry of Education/ Jordan | Very good          | 1994            |

**Publications (peer reviewed):**

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| Cooustets M., <b>Al-Karablieh N</b> , Thomsen C., Teissié J. (2013). Flow Process for Electroextraction of Total Proteins from Microalgae. J. membrane bio. 10.1007/s00232-013-9542-y.   |
| Rwehumbiza, V. M., Vennapusa, R. R., Gavara, P. R., Fernández-Lahore, Héctor M., <b>Al-Karablieh, N.</b> , Ullrich, M. S. and Thomsen, C. (2013). Potential of fibrous adsorbents for the binding and characterization of <i>Porphyridium purpureum</i> bioactive polysaccharides. J. Chem. Technol. Biotechnol.. doi: 10.1002/jctb.4120 |
| Srivastava A., <b>Al-Karablieh N.</b> , Khandekar, S. Sharmin, A and Ullrich M. S. (2012). Genomic distribution and divergence of levansucrase-coding genes in <i>Pseudomonas syringae</i> . <i>Genes</i> 3, 115-137.  |
| <b>Al-Karablieh N.</b> , Weingart H., and Ullrich M. S. (2009). Genetic exchange of multidrug efflux pumps among two enterobacterial species with distinctive ecological niches. <i>Int J Mol Sci</i> 10: 629–645.   |

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| <b>Al-Karablieh N.</b> , Weingart H., and Ullrich M. S. (2009). The outer membrane protein TolC is required for phytoalexin resistance and virulence of the fire blight pathogen <i>Erwinia amylovora</i> . <i>Microb Biotech</i> 2: 465–475.  |
| <b>Al-Karablieh, N.</b> , Burse, A., Weingart, H., and Ullrich, M. S. (2008) AcrAB-TolC directs efflux-mediated resistance towards phytoalexins in the plant pathogen <i>Erwinia amylovora</i> . (In Proceeding of the 11th International Workshop on Fire Blight. 253-259. Edi.Johnson, K. B., and Stockwell, V. O. Acta Horticulture 793. ISHI. USA. |
| Wensing, A., <b>Al-Karablieh, N.</b> , Ullrich, M. S., Jakovljevic, V., Mohammadi, M., and Geider, K. (2008) Autoinducer in <i>Erwinia amylovora</i> . (In Proceeding of the 11 <sup>th</sup> International Workshop on Fire Blight. 249-251. Edi.Johnson, K. B., and Stockwell, V. O. Acta Horticulture 793. ISHI. USA.                               |
| <b>Al-Karablieh N.</b> , Khalif H., and Al-Banna L. (2006). Identification of <i>Agrobacterium tumefaciens</i> strains by PCR-RFLP analysis of the 16S-rDNA. <i>Dirasat</i> (Jordanian Journal of Agricultural Science) 2, 209-220.  |
| <b>Al-Karablieh N.</b> and Khlaif H. (2002). Occurrence and distribution of crown gall disease in Jordan. <i>Phytopathol. Mediter.</i> 41, 226-234.  |

#### Conferences:

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| 4 <sup>th</sup> Global conference on Renewables and Energy Efficiency for Desert Region. Amman-Jordan (2013).     |
| JOCHERA Symposium Conservation for Cultural Heritage in Jordan. Amman- Jordan (2012).                             |
| 11 <sup>th</sup> International Fire Blight Workshop. Portland, Oregon-USA (2008).                                 |
| Joint Annual Conference of the Association for General and Applied Microbiology /VAAM. Frankfurt- Germany (2008)  |
| Annual conferences of the German Phytomedical Society. Erfurt-Germany (2008).                                     |
| Joint Annual Conference of the Association for General and Applied Microbiology /VAAM. Osnabrück- Germany (2007). |
| Annual conferences of the German Phytomedical Society. Quedlinberg- Germany (2007).                               |
| 11 <sup>th</sup> International Symposium on Microbial Ecology. Vienna- Austria (2006).                            |
| Molecular Life Science Retreat, Worpswede- Germany (2006).  |
| Annual conferences of the German Phytomedical Society. Hannover- Germany (2006).                                  |
| Annual conferences of the German Phytomedical Society. Weinsberg- Germany (2005).                                 |

#### Training:

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| Train-the Trainers Course for Biosafety and Biosecurity. International Council for the Life Science, Amman- Jordan (2013). |
| JOCHERA IPR and Technology Transfer Training. Hamdi Mango Center for Scientific Research, Amman- Jordan (2013)             |
| Water Reuse in the Mediterranean Countries. Technical University Berlin, Berlin- Germany (2013)                            |
| JOCHERA FP7 Training. Hamdi Mango Center for Scientific Research, Amman- Jordan (2012)                                     |

Capacity Building of Jordanian Researcher. The Higher Council for Science and Technology, Amman- Jordan (2011)

### Technical Skills:

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| Molecular Techniques            | <ul style="list-style-type: none"> <li>• Nucleotide sequencing analysis, extensive bioinformatics work.</li> <li>• RNA extraction techniques, Dot blot hybridization.</li> <li>• Western blotting, SDS PAGE and native PAGE, zymographic detection of enzymes.</li> <li>• Site directed mutagenesis, transposon mutagenesis.</li> <li>• Cloning, transformation experiments of <i>E.coli</i>, <i>Pseudomonas</i>, <i>Agrobacteriu.</i>, and <i>E. amylovora</i>.</li> <li>• PCR, optimization of PCR.</li> <li>• Overexpression and purification of proteins, sub-cellular protein fractionation.</li> <li>• Cultivating different algal species.</li> <li>• Extraction bioactive compounds from different algal species.</li> </ul> |
| General Microbiology techniques | <ul style="list-style-type: none"> <li>• Plant inoculation assays</li> <li>• Handling <i>E.coli</i> and <i>Erwinia amylovora</i>, <i>Pseudomonas</i>, <i>Agrobacterium</i>.</li> <li>• Hypersensitive reaction on tobacco plant</li> <li>• Gram staining, biochemical analysis, antibiotics resistance (MIC)</li> </ul>  |
| Other                           | <ul style="list-style-type: none"> <li>• Absorption spectrophotometer</li> <li>• Scanning electron microscope</li> </ul>   |

### Computer Proficiency:

#### Tools and Packages:

- Microsoft Office
- Windows operation
- Adobe photoshop
- Vector NTI and DNA star genetics work packages
- Online DNA and protein sequence analysis

#### Teaching Experience:

- Supervising the Microbiology lab course. (Jacobs University Bremen).
- Four graduate and undergraduate students were supervised for their bachelor's and master's dissertation (Jacobs University Bremen).
- Research assistant (2002-2004). Faculty of Agriculture (University of Jordan).
- Teaching assistant (1998-2002). Faculty of Agriculture (University of Jordan)