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| **SUNDERISHWARY S. MUNIANDY** |

5, Jalan Jadi Indah 1, Phone: 016 - 4125104

Taman Jadi Indah, Email: sunderishwary@gmail.com

14020 Bkt. Mertajam, 27 years old

Penang. Married

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| **Motivation** |

A passionate, adaptive and fast-learning person with a broad and acute interest in the discovery of new innovative green methods for the synthesis of nanomaterials, I particularly enjoy collaborating with scientists from different disciplines to develop new skills and solve new challenges.

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| **Education** |

2015 – 2017 **M.Sc. in Chemistry (RESEARCH),** School of Chemical Sciences, Universiti Sains Malysia (USM)

*Reseach Title***:** Synthesis of TiO2/Ag Nanocomposite using green chemistry approaches for the application of self – cleaning and antimicrobial properties on fabrics.

2011 – 2013 **B.Sc. in Resource Chemistry**, Faculty of Resource Science and Technology, Universiti Malaysia

CGPA: 3.19 Sarawak (UNIMAS)

*Thesis:* Effects of Processing Parameters on the Yield of Cellulose Isolated from Sawdust

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| **Industrial Working Experience** |

**Taiki Manufacturing Sdn. Bhd, Perai** Research & Development Department **2017 – Present**

R&D Engineer

***Job scope:***

* New product development and invention using natural or synthethic rubber.
* Design new products based on sales request using Draftsight software.
* Product improvement according to sales/ customer requirements.
* Sample formulation and preparation using various latex and polymers.
* Carried out functional test of prepared new samples.
* Conducted material testing for samples prepared
* Communicate/ negotiate with global sales team.
* Upgraded or invented new documentation system in R&D team.
* New laboratory setup in new factory according to standard laboratory procedure.
* Support R&D team members in Kaizen studies regarding production process.
* Carried out various parameter studies before release sample for production.
* Report writing on new sample production.
* Assisting production team when issues encountered during first batch production.

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| **Research Experience** |

**Department of Physical Chemistry**, Universiti Sains Malysia (USM) **2015 – 2018**  M.Sc Researcher

***Advisor:*** *Dr. Lee Hooi Ling*

* Advanced nanomaterial research
* Development of green method for synthesis of pure TiO2 nanoparticles and silver (Ag) nanoparticles.
* Incorporated TiO2 nanoparticles and silver (Ag) nanoparticles for dual functionalities into one final product (TiO2/Ag).
* Interpretation and comparison of photocatalytic activity between pure TiO2 and TiO2/Ag nanocomposite.
* Investigating mechanism involved and kinetic analysis on photocatalysis.
* Explored antimicrobial activity of silver and TiO2/Ag composite.
* Work involves coating of synthesised nanomaterial on fabric for dual properties (self – cleaning and antimicrobial activities).

**Advanced Medical and Dental Institute**, Universiti Sains Malysia (USM) **2013**

Chemistry Research Intern (B.Sc. Industrial Placement for 3 months) ***Advisor:*** *Dr. Lim Vuanghao*

* Assisted one of the M.Sc. researchers in Dr. Lim’s research group.
* Performed research on synthesizing silver nanoparticle using leaf extract.
* Studied antibacterial activity using minimum inhibition concentration (MIC) method.
* Developed independent thinking skills and the ability to communicate scientific ideas.

**Faculty of Resource Science and Technology**, Universiti Malaysia Sarawak (UNIMAS) **2012 – 2013**

Undergraduate Researcher

***Advisor:*** *Dr. Chin Suk Fun*

* Nanomaterial research.
* Isolation of cellulose from waste (sawdust), chemical characterization of reaction product.
* Development of cellulose nanoparticles from isolated cellulose using sonochemical technique.

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| **Research Interest** |

Advanced Nanomaterials, Green chemistry, Photocatalysis, Antibacterial studies, Natural rubber, Polymers

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| **Publication** |

**Sunderishwary S. Muniandy,** Tan Shueai, Noor Haida Mohd Kaus, S. Sasidharan, Hooi Ling Lee\*, ‘A one-step green synthesis of TiO2-Ag Nanocomposites and their performance towards photocatalytic activities and antimicrobial properties’, *Malaysian Journal of Catalysis 2* (2017) 28-34**.**

**Sunderishwary S.M.,** S. Sasidharan, Noor Haida M.D., H.L. Lee\*. ‘Green synthesis of mesoporous anatase TiO2 nanoparticles and their photocatalytic activities’, *RSC Advance* (2017) 48083-48094*.*

**Sunderishwary S.M**., S.Tan, S. Sasidharan, H.L. Lee\*. ‘Green synthesis of Ag nanoparticles and their performance towards antimicrobial properties’, *Manuscript submitted to BJNANO journal.*

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| **Conference Presentation** |

**Sunderishwary S. Muniandy**, Tan Shueai, Noor Haida Mohd Kaus, S. Sasidharan, Hooi Ling Lee, ‘A one-step green synthesis of TiO2-Ag Nanocomposites and their performance towards photocatalytic activities and antimicrobial properties’, Oral presentation at **International Conference on Catalysis (iCAT 2016)**, Johor Bahru, 18-19th September 2016.

H.L. Lee, **Sunderishwary S.M**., S.Tan, S. Sasidharan, Noor Haida M.D., Green Synthesis of TiO2 for Visible Light, Photocatalytic Activities, **Symposium of Crystal Defects on Surface Reactivity & Heterogeneous Photocatalysis Philadelphia Convention Center**, PA, USA, ACS Fall Meeting, 21-25 August 2016.

H.L. Lee, Sunderishwary S.M., S.Tan, S. Sasidharan, Noor Haida M.D., Green Synthesis of TiO2 for Solar Irradiated Photocatalytic Activities, **4th USL-UL Colloquium**, Universiti Sains Malaysia, Penang, 17th January 2017.

**Sunderishwary S. Muniandy**, Noor Haida Mohd Kaus, S. Sasidharan, Hooi Ling Lee, ‘Synthesis of TiO2-Ag nanocomposites using green chemistry approaches for their performance towards photocatalytic activities and antimicrobial properties’, **School Seminar,** School of Chemical Sciences, Universiti Sains Malaysia, Penang, 28th April 2017.

**Sunderishwary S. Muniandy**, Noor Haida Mohd Kaus, S. Sasidharan, Hooi Ling Lee, ‘Synthesis of TiO2-Ag nanocomposites using green chemistry approaches for their performance towards photocatalytic activities and antimicrobial properties’, Visiting Researcher, Faculty of Science, Ubon Ratchathani University (UBU), Thailand, 1st -6th april 2017.

Hooi Ling Lee, **Sunderishwary S. Muniandy**, Noor Haida Mohd Kaus, S. Sasidharan, ‘Synthesis of TiO2-Ag Nanocomposites using Green Chemistry Approach for the Application Self-cleaning and Antimicrobial Properties on Fabric’, International Conference for Young Chemists (ICYC), Penang, 16-18th August 2017.

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| **Mentoring** |

***Undergraduate students***

Mentored the undergraduate students, Tan Shueai and Chun Hoe (2015-2016) in the laboratory for their final year project

***Research Assistants***

Lead two research assistants to conduct mini projects for their summer internship programme.

***High school students***

Guided three high school student from SMKA Kubang Kerian to conduct experiments in USM for a competition (Engineering, Science & Technology Youth Programme\_Youth Industry Bootcamp 2016).

***High school students***

Mentored high school students from various school for Microscale Chemistry Outreach Programmes intended for Secondary Schools in Penang.

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| **Technical Skills** |

**Microbiology:**

Conducted disc diffusion assay including cell culture to determine antibacterial properties of materials.

**Analytical methods:**

Interpretation of analysis technique (spectrophotometry, XRD (Rietveld Refinement), Dynamic Light Scattering (Zeta potential), Nitrogen Adsorption Analysis, Total Organic Carbon (TOC) Analysis, FTIR, HRTEM & SAED, Raman Spectroscopy, TGA, XPS)

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| **Personal Skills** |

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| ● Accurate | ● Efficient | ● Think ahead | ● Troubleshoot | ● Friendly |
| ● Adaptable | ● Hardworking | ● Trustworthy | ● Punctual | ● Responsible |
| ● Broad - minded | ● Independent | ● Organized | ● Resourceful | ● Good observer |
| ● Confident | ● Innovative | ● Delegate | ● Persistent | ● Excellent leadership |
| ● Determined | ● Self-motivated | ● Take instructions | ● Analytical | ● High curiosity |

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| **University Activities** |

**Visiting Researcher,** Exchange Programme at Faculty of Science, Ubon Ratchathani University (UBU), Thailand,1st- 6th April 2017.

* Presented Msc research project entitled ‘Synthesis of TiO2-Ag nanocomposites using green chemistry approaches for their performance towards photocatalytic activities and antimicrobial properties’.
* Assisted supervisor in Microscale Chemistry Session to guide UBU students.
* Aided supervisor to conduct a short workshop on research proposal for UBU post graduate students.
* Attended presentation of postgraduate research projects by selected postgraduate students.
* Networked with new research group (Dr. PURIM group) in Faculty of Science of UBU.
* Exchanged cultural values with students in UBU.

**5th International Conference for Young Chemists**, Committee Member, 2014 – 2015

* Helped to handle the Transportation Committee for participants and invited speakers for the conference.
* Networked and socialized with local and international researchers and professors attended for ICYC.

**Microscale Chemistry Outreach Programme**, Student Helper

* Assisted the advisor of the programme to prepare the chemicals and setup the experiments.
* Guided high school students to perform microscale experiments in laboratory.

**National Science Challenge 2016**, Volunteer

* Contribute help for the event involved high school student which held in USM

**Occupational Safety and Health Course,** Participant

* Attended the safety course organized by Occupational Safety and Health Committee of USM.

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| **References** |

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| M.Sc. Research Advisor  **Dr. Lee Hooi Ling**  **Senior Lecturer**  Department of Physical Chemistry  Universiti Sains Malaysia  Tel: (+604)653 3547  E-mail: hllee@usm.my | M.Sc Collaborator (Microbiology Advisor)  **Associate Professor Dr. S. Sasidharan**  **Senior Lecturer**  Institute for Research in Molecular Medicine  Universiti Sains Malaysia  Tel: (+604)653 4820  E-mail: srisasidharan@usm.my |

**Research Experience:**

As you will see in the resume, I had considerable laboratory experience (5 years) in both universities and also in my current job. I am person who is interested in the development nanomaterials and able to work independently, multi task and solve the problems in a high-pressure environment. I believe my resume outlines a work and education history that you will find interesting and relevant. In addition, I have strong communication skills, and my computer skills are excellent too. My supervisors and current boss much-admired me for my communication and out of box thinking skills and for my ability to work well with many different people within and out of our research team in order to develop new ideas in research. I developed my leadership and interpersonal skills by being an active member of an organization in the Universiti Sains Malaysia main campus. As the committee member of the 5th International Conference for Young Chemists, I had the chance to develop my interpersonal skills and able to gain a network and socialize with local and international researchers and professors.

Besides, I have the capacity to learn all I can about material chemistry and has a strong analytical skill, and will take the initiative when confronted with a problem to see that it is solved. My problem-solving skills during my research programme and in work place is unquestionable because somehow I have the ability to troubleshoot a problem and overcome it with various solving ideas and backup plans. I could explore more on this quality in my current work place since I have to reach tight datelines on time. I have learned to plan and manage my task given by my superiors efficiently.

Thus, handling a project related to chemistry isn’t a big deal for me because I can adapt to new projects and environment in order to make a project successful. For instance, my Msc project was supposed to be a Phd project. However, I able to take the challenge by provide a novel method and able to complete the whole outline of project in given timeline (2 YEARS). I would like to emphasize that my dedication and on time nature can be observed in this phenomena. Basically, I’m a researcher who loves to handle challenges all the time no matter how big the pressure is and I’m an adaptive and fast learner in any new field I’m exposed to.

*“MY PASSION IS ALL ABOUT BEING CURIOUS AND NEVER TIRED WITH NEW IDEAS”*