Taufiq Hasan Aneem

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Google Scholar, LinkedIn, Portfolio

EDUCATION

2016-Present (Expected graduation January 2021)

Bachelor of Science, Department of Biomedical Engineering,
Bangladesh University of Engineering and Technology (BUET).
CGPA- 3.87 out of 4.0 (7 out of 8 semesters), Fifth position in class.
Expected graduation was in August 2020 which was disrupted by COVID-19. Satisfactory/Fail grading will be given in the last semester.

ENGLISH PROFICIENCY EXAM

TOEFL- Total 106; Reading- 28, Listening- 27, Speaking- 24, and Writing- 27.

RESEARCH INTERESTS

Biomaterials, Protein Engineering, Drug and protein delivery, Immunotherapy, Cancer treatment, Wound healing, Tissue engineering, Regenerative medicine.

RESEARCH EXPERIENCE

- **2017- Present**

  Undergraduate research student- BioInnovation Research group, **Department of Biomedical Engineering, BUET**.
  - Worked on the synthesis and characterization of bioceramics (nano-hydroxyapatite).
  - Undergraduate final year thesis project title — 'Wet-spun sodium alginate fibers loaded with antimicrobial peptides for potential biomedical applications'.
    Supervised by— Associate Professor M. Tarik Arafat (BUET)

- **January 2020- February 2020**

  Non-graduating research assistant at **Nanyang Technological University (NTU),** Singapore.
  - Project title — 'Purification and characterization of antimicrobial peptides extracted from corn and wheat'.
    Supervised by— Associate Professor Sierin Lim (NTU).

- **April 2019- April 2019**

  Internship at **Biomedical and Toxicological Institute** under **Bangladesh Council of Scientific and Industrial Research (BCSIR)** gaining experience on the following—
  - DNA extraction from an organism and its quantitation through spectrophotometry
  - Amplification of extracted DNA by real-time polymerase chain reaction (RT-PCR)
  - DNA sequencing
  - Extraction of tissue from an organism and its washing and slicing before viewing under a microscope.

PUBLICATIONS

Journal publication

1. **T.H. Aneem**, S.K. Saha, R.A. Jahan, S.Y. Wong, X. Li, M.T. Arafat, Effects of organic modifiers and temperature on the synthesis of biomimetic carbonated hydroxyapatite, Ceram. Int. 45 (2019). doi:10.1016/j.ceramint.2019.08.211.
2. **T.H.Aneem**, S.Y. Wong, X. Li, M.T. Arafat, Wet-spun poly-M sodium alginate fibers with improved functionality by varying organic coagulants and crosslinkers, (Submitted in Polymer).

Conference publications

1. S.K. Saha, **T.H. Aneem**, M.A. Matin, R.A. Jahan, M.T. Arafat, Effects of synthesis temperature on the chemically precipitated nano-hydroxyapatite, AIP Conf. Proc. 2121 (2019). doi:10.1063/1.5115967.
2. F. Islam, **T.H. Aneem**, M.U. Jahangir, S.K. Saha, M.T. Arafat, Comparative analysis of thermally sintered and biomimetically precipitated nano-hydroxyapatite, World Biomaterial Congress (WBC) 2020 (Accepted).

UNIVERSITY PROJECTS

1. 'High-Performance UV Disinfection Cabinet for Masks and Personal Protective Equipment' funded by BUET Alumni to mitigate damages due to COVID-19.
   Supervised by- Associate Professor M. Tarik Arafat (BUET).
2. 'Protective cover for a conventional tracheostomy tube' — in collaboration with an expert doctor.
3. 'Development of an efficient low-cost syringe pump' by 3D printing costing under 50 dollars.

ACHIEVEMENTS and AWARDS

1. '**Outstanding Poster**' in International Poster Presentation Competition (IPPC 2020). The poster title — 'Role of Crosslinkers and Coagulants on Wet-spun Sodium Alginate Fibers' organized by NYAB, INYAS, SLAYS, and TYSA.
2. **Second prize** in project competition in International COVID-19 Congress (ICC 2020) hosted by IEEE Bangladesh for the project — 'High-Performance UV Disinfection Cabinet for Masks and Personal Protective Equipment' beating Asian countries such as India, Thailand, and Malaysia.
3. **Sixth place** in IEEE WIECON-ECE 2018: Humanitarian Project Competition, Thailand, for the project proposal- 'finD banD- A Wrist Band for Children to Prevent the Incident of Drowning'
4. The Duke of Edinburgh's International Award, Silver Standard.
5. **Dean's List** Award for three consecutive years.
6. **University Merit Scholarship** for three consecutive years.
7. BUET Technical Scholarship.
8. 10^{th} and 8^{th} grade National Board Scholarship.

RESEARCH SKILLS

Manufacturing Skills —Wet-spinning, Electrospinning, 3D printing.

Material Characterization Skills —Fourier Transform Infrared Spectroscopy (FTIR), Scanning Electron Microscopy (SEM), Dynamic Light Scattering (DLS), Tensile testing, Thermogravimetric Analysis (TGA), Differential Scanning calorimetry (DSC), UV- Spectroscopy, and Energy Dispersive X-ray Analysis (EDX).

Protein Purification Skills — Ion-exchange chromatography, Size-exchange chromatography, and Gravity filtration.

Protein Characterization Skills — Bradford Protein Assay, Gel Electrophoresis, Mass Spectrometry, Circular Dichroism (CD), and Dynamic Light Scattering (DLS).

Protein/Drug Release and Efficacy Testing Skill — Antibacterial Testing.

DNA Characterization Skill — Real-time polymerase chain reaction (RT-PCR).

Software Skills — Microsoft Office, MATLAB, C Programming.

EXTRACURRICULAR ACTIVITIES

1. Voluntary scientific article writer at 'Advanced Science News'.
2. Co-founder of a start-up — '3DReality- 3D printing service and solution' providing services nationally.
3. Organizer of Bangladesh Biology Olympiad, regional round.