



Professional Profile

Enthusiastic, intuitive, and hardworking candidate with five years of wet lab and bioinformatics experience while pursuing my Ph.D. work. As an organized and dependable individual, I have proven abilities in successfully managing multiple responsibilities with a positive attitude to prioritize and achieve team goals. Key areas of my expertise are,

- Molecular Drug Designing and Data Analysis
- Small Animal (Rat & Guinea pig) Handling
- Molecular Cardiology Investigations
- Endotracheal intubation and LAD Ligation surgery
- ECG Analysis in Rat & Guinea pig
- Structural Bioinformatics

Skills

Bioinformatics

- Schrodinger
- GROMACS
- Argus Lab
- Modeller
- MEGA
- Basic Bioinformatics Tools

Wet Lab

- Electrophoresis
- Western Blotting
- Histology
- Immunohistochemistry
- Chromatography techniques
- Basic Biochemistry Experiments

Academic Credential

JAN 2015–DECEMBER 2021

Ph.D. In Bioinformatics, Bharathidasan University, Trichy, Tamil Nadu, India.

JUNE 2008- JULY 2014

**M.Tech., Bioinformatics (Integrated), Bharathidasan University, Trichy, Tamil Nadu, India.
CGPA- 8.9/10**

Doctoral Research Project

Title: “UNDERSTANDING THE POSSIBLE MECHANISM BEHIND CALCIUM OVERLOAD IN EXPERIMENTAL POST-MYOCARDIAL INFARCTION IN THE RAT MODEL: A COMBINED *in-vivo*, *in-silico*, AND LC-MS BASED VALIDATION OF THE WHOLESOME EFFECT OF *Crataegus oxycantha*”

Aim: To disclose the exact mechanism of altered calcium imbalance that arises during myocardial reperfusion injury, life-threatening conditions called Myocardial stunning/arrhythmias.

Findings: Presenilins were recognized as perpetuating factors behind the variations in calcium signaling during myocardial ischemia/reperfusion injury. *Crataegus oxycantha* and in particular, its phytochemical Epicatechin gallate used in this study was identified as effective cardioprotective agent by inhibiting multiple targets of post-MI complications.

Guide: Dr. K. S. Jayachandran, Assistant Professor, Department of Bioinformatics, Bharathidasan University, Trichy- 620024.

Abstract: The Myocardial infarction that ensues after serious myocardial ischemia is congenitally alleviated through a remediation mechanism, known as myocardial reperfusion. Nonetheless, the reperfusion process has dualistic engagement, it protects the myocardium and culminates the tissues by aggravating the infarction. Protracted reperfusion injury can induce several post-myocardial infarction complications with fatal eventualities like myocardial stunning/arrhythmias. Despite the availability of an assorted number of medications and advanced treatments, its ramifications remain futile. This ineffectiveness and deficiency are eventuated by co-morbidities and inadequate knowledge about the disease. There is a defalcation of scholarship that expounds the exact mechanisms behind the post-myocardial infarction complications and further, there is a scarcity of medications with multiple targeting effects to overcome the failure that occurs due to co-morbidities.

Therefore the present study is aimed to analyze the mechanism behind the incidence of myocardial stunning/arrhythmias, along with the treatment using *Crataegus oxycantha* ethanolic extract, a cardiogenic with demonstrated multiple cardioprotective properties through various *in-vivo* and *in-silico* experiments. Based on the beneficial results from *in-vivo* and *in-silico*, the effective compounds in *Crataegus oxycantha*, that act against key signaling proteins involved in the pathogenesis of myocardial-Ischemia/Reperfusion injury were identified and further investigated for its beneficial effects through *in-silico* studies. The presence of such compounds in the ethanolic extract of *Crataegus oxycantha* was also ascertained through Liquid chromatography-Mass spectrometry analysis. On cumulating the results, the study has identified a possible triggering factor behind the pathogenesis of myocardial stunning/arrhythmias and identified *Crataegus oxycantha* as a better drug to treat Ischemia/Reperfusion Injury.

Publications

- **Ravindran, A. S. K.**, Venkatabalasubramanian, S., Manickam, R., Anusuyadevi, M., & K. Swaminathan, J. (2020). Plausible computational insights and new atomic-level perspective of epicatechin gallate from *Crataegus oxycantha* extract in preventing caspase3 activation in conditions like post-myocardial infarction. *Journal of Biomolecular Structure and Dynamics*, 1-16. doi: 10.1080/07391102.2020.1847196.
- **Ravindran, A.**, Anusuyadevi, M., & Jayachandran, S. (2020). Protective Effects of Flavonols From *Crataegus Oxycantha* Against Inflammatory Markers of Atherosclerosis: A Structure Based, Molecular Docking And Dynamics Studies. *International Journal of Nutrition, Pharmacology, Neurological Diseases*, 10(4), 194-202. doi: 10.4103/ijnpnd.ijnpnd_73_20.
- Dasagrandhi, D., **Kr, A.**, Muthuswamy, A., & Ks, J. (2017).HMGB1: A Therapeutic Target for Myocardial Infarction. *Journal of Cardiology & Cardiovascular Therapy*, 7.doi: 10.19080/jocct.2017.07.555724.
- Dasagrandhi, D., **R, A. S. K.**, Muthuswamy, A., Lennox, A. M., Jayavelu, T., Devanathan, V. (2018).Ischemia/reperfusion injury in male guinea pigs: An efficient model to investigate myocardial damage in cardiovascular complications. *Biomedicine & Pharmacotherapy*, 99, 469-479. doi: <https://doi.org/10.1016/j.biopha.2018.01.087>.
- Mohan, S., Thilagar, G., **Salomy, A.**, Nisha, M., Kandasamy, M., M, M. (2018). Biophysical interaction of resveratrol with sirtuin pathway: Significance in Alzheimer's disease. *Frontiers in Bioscience*, 23(7), 1380-1390.
- Divya, D., **Arul Salomee Kamalabai, R.**, Anusuyadevi, M., & Jayachandran, K. S. (2019). Construction and Analysis of Protein-Protein Interaction Network: Role in Identification of Key Signaling Molecules Involved in a Disease Pathway. *Computer Applications in Drug Discovery and Development* (pp. 204-220). Hershey, PA, USA: IGI Global.
- Preetha, S. P., **Arul Salomee Kamalabai, R.**, Jayachandran, K. S (2021). Qualitative and quantitative phytochemical screening of vitex negundo L.extract using chromatographic and spectroscopic studies. *Natural Volatiles & Essential Oils*, 8(4), 11949-11961.
- Preetha, S. P., **Arul Salomee Kamalabai, R.**, Jayachandran, K. S (2021). Effect of vitex negundo compounds on urinary tract infection causing klebsiella pneumoniae: An insilico based approach. *Turkish journal of physiotherapy and rehabilitation*, 32(3), 33061-33081.

Conferences/ Workshops/ Seminars

Presented:

- Possible mechanism behind Ca^{2+} overload in the Post Myocardial Infarction and the beneficial effect of *Crataegus oxycantha* extract. Arul Salomee Kamalabai R, Anusuyadevi M and

Jayachandran K S. Oral presentation. “Past, Present and Future of Atherosclerosis Where do we stand?. 31st annual conference and international symposium, ISARCON 2018, JIPMER-Pondicherry.

- Myocardial Infarction in rat induces brain ischemia upregulating PS2 and PS1 promoting neuronal degeneration during aging. J. Kesavanswaminathan, K. Arul salomee. AD/PD 2015: International conference on Alzheimer’s and Parkinson’s Diseases. Nice, France.

Participated:

- Organizing committee member in One day event on “*Awareness for Alzheimer’s Disease-“ALZINFO-2019”*” in Bharathidasan university, Trichy – 2019
- Two day Hands-on workshop on “*Computer-Aided Drug and Biologics Discovery*”, in Bharathidasan University, Trichy – 2015
- “*National Seminar on Bioinformatics (NSB’15)*” in Bharathidasan University, Trichy – 2015
- 4th national symposium cum workshop on “*Recent Trends in Structural Bioinformatics and Computer Aided Drug Design*” SBCADD-2012 in Alagappa University, Karaikudi - 2012.
- CSIR sponsored National Workshop on “*Computational Intelligence Applications in Bioinformatics*” in Dr. M.G.R. Educational and Research Institute University, Chennai – 2011.
- Workshop on “*Cheminformatics & Drug Designing*” using VLife MDS 3.5 conducted by Helix Info Systems, Training & Research Institute in Bioinformatics, Chennai – 2011.
- Workshop on “*Support Vector Machines – Applications on Identification of Protein and Gene functions*” in Bharathidasan University, Trichy – 2011.
- Workshop on “*Patent information*” in Bharathidasan University, Trichy – 2008.

References

- Dr. K. S. Jayachandran, Assitant Professor, Department Of Bioinformatics, Bharathidasan University, Trichy, India -620024. Email:jayachandran@gmail.com.
- Dr. S. P. Preetha, Assitant Professor, Department Of Veterinary Pharmacology and Toxicology, Madras Veterinary College, Tamil Nadu Veterinary and Animal Sciences University, Chennai, India -600007. Email:drsppreetha@gmail.com