SCO-Young Scientist Profile

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Details of research work carried out in S&T (*limit to 200 words*)

With Defence Research and Development Organization (DRDO), I had developed a novel technique for the radiological decontamination of the skin using novel complexing agents which are further incorporated inside a non-woven fabric and developed as skin decontamination wipe. The technology was transferred to the industry and the product is marketed under the trade name of ***"REMOCON^{TM}"*** (Patent No.***339317***). Currently, the "REMOCON" is used by Armed Forces and Paramilitary forces along with the National and state-level disaster relief forces.

I had developed Novel Drug Delivery Systems and also devised and applied pharmacoscintigraphic procedures for its preclinical evaluation in various experimental models of disease.

In collaboration with Institute of Nuclear Medicine and Allied Sciences (INMAS), I had developed the dermal formulations for the broad spectrum decontamination and healing of radiation-induced wounds (2 patents field ***No.201711036758*** and ***No.202011041340***). Both the formulations were under the clinical evaluations according to the norms of the Drug Controller General of India Guidelines.

Since, past 4 years, my work exclusively focused on the Chemical, Biological, Radiological and Nuclear (CBRN) Defence. Currently, I am working with IIT Delhi on the universal formulation for the CBRN decontamination of skin (2 patents field ***No.201711037099*** and ***No.202011031843***). For the same, I got Young scientist award and funding of a project as a principal investigator by Science for Equity, Empowerment and Development (SEED) Division, DST-2018. We are under the pre-industrial stage of the development of the product.

Associated SCO-YSC Theme: Combating COVID-19 & emerging pandemics through research & innovation

Statement of Innovation ***(Brief information on new innovative ideas including startup / entrepreneurs- limit to 150 words)***

The first quarter of this year motivated me to direct my focus towards developing solutions for viral decontamination (especially COVID-19) from living and inanimate surfaces. For the same my group at IIT Delhi awarded by a project from the **SERB DST (File No. SB/S1/Covid-1/2020)** for the development and commercialization of the antiviral coating materials. Currently, under this project, I am working on the development of the moping agent and coating materials for the viral decontamination. I am in the final stage of the evaluation

and patent filing of the novel antimicrobial paint for metal coating, moping wipes and spray which are durable and provide protection up to 6 months not only against the Covid-19 but also against the other microbes including bacteria and Fungi. I had also developed the CBRN ie., Chemical, Biological, Radiological and Nuclear decontamination station which is not only capable to decontaminate the viral load but also the toxic industrial chemicals (TIC's) and hazardous radionuclides from the Personal Protective Equipments (PPE's), surgical items and food materials. We had filed the patent for the ***Portable Decontamination Device No. 202011031842*** and in the final stage of the Transfer of Technology to the SMS Hydrotech, Faridabad, Haryana.

Major awards/ Achievements ***(Upto 3 awards)***

International Award

1. Venus International Healthcare Award (VIHA)- 2018, Young Researcher in Pharmaceutics by Venus International Foundation

National Award

1. Department of Science and Technology (DST), Govt. of India, Young Scientist Award-2018
2. Council of Scientific & Industrial Research (CSIR), Research Associateship-2018

Possible collaboration with SCO countries ***(limit to 100 words)***

After the UN's initiative of Globalization, science and technology has become borderless. Interdependence and mutual relation between countries are the backbones of the economy of a country. Among living creatures mankind only created the society, based on interdependence in knowledge sharing. Science is the backbone of today's commerce and subsequently, technology cannot succeed without commerce. My main motivation in this conclave will be to initiate the commerce-driven scientific dialogue with the eminent scientist from member nations. Being an expert in the applied research, I will like to explain the products developed by me and welcome the ideas of the fellow researchers of the member nations. Shared knowledge and scientific achievement are the potential weapons to handle the calamities and epidemics which threaten human life. My present initiative aiming at joint proposals and commercialization of the new ideas for the medical management of CBRN emergencies.

Key words ***(relevant to research work conducted as well as proposed innovation, 5-6 words)***

Disinfectant, Decontamination, CBRN Protection, Emergency Medicine, Medical Management, Antiviral formulations