

Editorial

Commemorative Issue of Defence Life Science Journal on DRDO@60

Defence Research and Development Organisation (DRDO), was set up on 1 January 1958 as a small organisation with only 10 laboratories with the amalgamation of the then already functioning Technical Development Establishments (TDEs) of the Indian Army and the Directorates of Technical Development and Production (DTD&P) with the Defence Science Organisation (DSO). Over the years, DRDO has seen multi-directional growth in its charter and projects.

DRDO's nine Life Sciences laboratories working in a number of disciplines that includes life saving and strategic support systems, protective equipment and clothing, physiological-psychological aspects, health and protection against biological and chemical warfare and, high altitude agro-technologies to meet fresh food requirement of troops at high altitudes, bio-energy as emergency fuel, and instant food requirements for battlefield operations. DRDO's Life Science cluster also publishing huge number of research papers/articles, review papers in the interdisciplinary subjects of life science.

Defence Life Science Journal is an initiative, which DESIDOC undertook on behalf of DRDO's Life Science Cluster in 2015. It has been conceived to cater to the needs of scientists of the DRDO Life Science Cluster and externally to a wide community of bio-scientists. The Journal started as a quarterly publication, which contains research papers, articles, essay under multi-disciplinary subject of life sciences. First issue of the Journal is published in June 2016. In volume 1, only two issues were published. In volume 2, four issues were published in 2017.

This issue of Defence Life Science Journal is a commemorative issue on the DRDO@60 includes papers authored by scientists of DRDO highlighting some of the achievements in technologies developed by various laboratories of DRDO. More than 25 papers were received for this Issue, and after peer evaluation due to limitation in number of papers in each issue, 14 papers have been selected for inclusion in the present Issue. Remaining peer-reviewed accepted papers would be included in the future issues of DLSJ.

In the present commemorative issue of DLSJ, research papers from different DRDO Life Sciences laboratories were selected after peer-review for inclusion in the issue. Scientists from DRDO have reported range of topic of their core research areas. G.K. Prasad, and co-author from DRDO-Defence Research and Development Establishment, Gwalior in their article, 'Nanomaterials based decontamination formulation for use in personal decontamination kit against chemical warfare agents' demonstrated that nanomaterials-based decontamination formulation composed of mixture of TiO_2 , MgO , and ZnO

nanoparticles demonstrates excellent decontamination properties against chemical warfare agents.

Nishi Misra, and co-author from DRDO-Defence Institute of Psychological Research, Delhi in her article, 'Personality assessment of officer cadre of Indian Armed Forces: A De Novo approach' discussed in detail about a new programme called 'De Novo system for the Selection of Personnel in the Armed forces'. Kumar and Chakarbarti from Directorate of International Cooperation, DRDO HQrs, Delhi in collaboration with India Central Potato Research Institute, Shimla in their article, 'Expression of β -defensin Gene in Potato Confers Enhanced Resistance to *Ralstonia Solanacearum* L' has reported that they successfully introduced β -defensin, an antimicrobial peptide into potato and demonstrated the stable integration and expression in transformed potato lines.

Yadav and Bhattacharya from DRDO-Defence Research and Development Establishment, Gwalior in their article, 'Acute immunomodulatory effects of fentanyl and its three new analogues in Swiss albino mice' has reveals undesirable effects of fentanyl and its new analogues on cytokines homeostasis, thereby limiting their use in pain management. S.M. Malik, and co-author from DRDO-Defence institute of Physiology and Allied Science, Delhi in collaboration with Department of Chemistry, University of Delhi, Delhi in their article, 'Ethyl 4-(4'-heptanoyloxyphenyl)-6-methyl-3,4-dihydropyrimidin-2-one-5-carboxylate prevents progression of monocrotaline-induced pulmonary arterial hypertension in rats' has reported the role of the H-DHPM, a novel DHP compound in preventing the development of MCT induced pulmonary hypertension in rats.

Haya Khalid, and co-author from DRDO-Defence Institute of Bio-Energy Research, Haldwani in their article, 'PCR-based methods for identification and detection of *Phytophthora infestans* in infected leaves of tomato' has reported that they developed a schematic protocol to examine the infection of late blight caused by *P. infestans* and also isolated and identified *P. infestans* based on morphological characteristics, serological and species-specific PCR assays.

Neera, and co-author from DRDO-Defence Food Research Laboratory, Mysuru in their article, 'Production of inulinase by *Fusarium* sp. and its application for fructooligosaccharide production for use as prebiotics' has isolated and harvested inulin *Fusarium* sp. from Dahlia rhizosphere for the production of fructo-oligosaccharide. Further, characterisation of exo-inulinase and production of Fructooligosaccharides were investigated.

Khudisia Sultana, and co-author from DRDO-Defence

Food Research Laboratory, Mysuru in their article, 'Evaluation of antioxidant activity, radical scavenging, and reducing power of clove oil and clove oleoresin in comparison with natural and synthetic antioxidants in chevon (*Capra aegagrus hircus*) and chicken meat' has investigated and reported the antioxidant effects of clove oil and clove oleoresin in two species of meat i.e. chicken and chevon during refrigerated storage ($4\pm 1^{\circ}\text{C}$).

Sanjay Mohan Gupta, and co-author from DRDO-Defence Institute of Bio-Energy Research, Haldwani in the article, 'Catalysed-microwave based pretreatment of lignocellulosic biomass of *Camelina Sativa L.* for bio-fuel production' evaluated the efficiency of the catalysed-microwave based pretreatment of lignocellulosic biomass of *Camelina sativa* straw to overcome the recalcitrant nature of cellulosic biomass.

Utsab Deb, and co-author from DRDO-Defence Research Laboratory, Tezpur in collaboration with DRDO-Defence Food Research Laboratory, Mysuru in their article, 'Nutritional studies and antioxidant profile of pickled oyster mushrooms of North East India' has created the mushroom pickle formulation, which has a shelf life of at least 12 months at room temperature with an overall acceptability score above 'very good' mark.

Singh and Dhiman from DRDO-Defence Institute of High Altitude Research, Leh in their article, 'Quality and quantity loss by aphid infestation in vegetables grown under protected cultivation in Ladakh region' has estimated the quality as well as quantity loss of cauliflower (*B. oleracea var. botrytis*), knol – khol (*B. caulorapa*) and radish (*R. sativus*) in the Ladakh region, in 2015 due to aphids infestation. Phuntsog Dolkar,

and co-author from DRDO-Defence Institute of High Altitude Research, Leh in collaboration with DRDO-Defence Institute of Physiology and Allied Sciences, Delhi in their article, 'Effect of mulching, shading, spacing and cutting thickness on propagation of Seabuckthorn (*Hippophae rhamnoides L.*) by cuttings' addressed the effect of plastic mulching, coloured shade netting, spacing and cutting thickness on rooting success and growth of Seabuckthorn (*Hippophae rhamnoides L.*) through hard wood cuttings.

Stanzin Angmo, and co-author from DRDO-Defence Institute of High Altitude Research, Leh, in collaboration with DRDO-Defence Institute of Physiology and Allied Sciences, Delhi in their article, 'Black polyethylene mulch doubled tomato yield in a low-input system in arid trans-Himalayan Ladakh region' has investigated the influence of black polyethylene mulch on growth and yield of tomato under a low-input cultivation system in arid high altitude in trans-Himalayan Ladakh region. Tsering Stobdan, and co-author from DRDO-Defence Institute of High Altitude Research, Leh in collaboration with Agriculture Department, Ladakh Autonomous Hill Development Council, Leh, in their review article, 'Vegetable production scenario in trans-Himalayan Leh Ladakh region' discussed about vegetable requirement round the year of the burgeoning local population, the army and the visiting tourists in the remote mountainous Ladakh region.

Defence Life Science Journal thanks all the contributors and reviewers for their contributions in bringing out this issue. I hope readers of DLSJ will enjoy the content of current issue and contribute their high quality content to make it an eminent resource for defence scientists and researchers.

(Alka Suri)
Editor-in-Chief