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Guest Editorial

New perspectives for exploring Medical Microbiology and Tropical Diseases

Bodhankar M G^{1,*}

¹Dept. of Applied Chemistry, Defense Institute of Advanced Technology,, Pune, Maharashtra, India



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The field of Medical Microbiology and tropical diseases has witnessed frequent outbreaks of diseases with increasing degree of virulence. In August 2022, 'Republic of the Congo' reported for confirmed case of 'Ebola virus'. It was detected in North Kivu and challenged entire health care sector of the Republic. In the same month, 'United Republic of Tanzania' documented 20 cases of 'Leptospirosis' in Lindi. 'Rohingya Refugee Camps' in Cox's Bazar Bangladesh reported 7178 cases of Dengue with 6 morbidities. In the month of July 2022 emergence of Marburg virus disease created turbulence in the health sector of Ghana. While in Somalia from January 2022 to July 2022 about 7796 cases of Cholera were documented. Scholars of the medical sciences and basic sciences do not claim for the isolation and identification of entire array of etiological agents. Many of unknown etiological agents often get masked under the title 'Idiopathic'. The human race probably has to face more severe outbreaks of the diseases caused by unknown etiological agents. Established scholars of the medical sciences should loudly address the futuristic compilations and younger scientist should deviate their research to make themselves competent to tackle such diseases.

Recently WHO has expressed deep concern over Hepatitis of unknown etiology. The disease took the toll of 22 and the cases were documented from 35 different countries. From January 01 to June 2022 about 3413 cases

of Monkey Pox have been reported across 50 countries. Though official claims are for complete eradication of active Polio disease, recently in the month of May 2022 wild Polio virus Type-I case was observed from Mozambique. Many countries are following or in the way of adopting new data collection methods. Over 500 million Covid-19 cases with 6 million morbidities have shaken the global health and economy. Most of the people in developing countries have limited access to essential medical services. The pandemic left deep impact on existing hospital management protocols and alarmed to bring positive changes in the infrastructure, availability of medical equipments, paramedical support, nursing procedures, biological waste disposal facilities and vaccine development. 'Intellectual Property Rights' have put extra burden on the clinical management of diseases.

Statistics of the research publication has highlighted the need to focus on neglected tropical diseases. It includes Leprosy, Onchocerciasis, Buruli-ulcer, Rabies, Trachoma, Leishmaniasis, Trypanosomiasis and Yaws. These tropical diseases should be addressed by younger generation of the scholars of the life sciences. Another aspect of the Medical Microbiology which needs serious attention is of antimicrobial resistance. Global medical sectors have a challenge of ESKAPE pathogens which reveal high degree resistance to chemotherapeutic agents. ESKAPE pathogens (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinobacter baumannii*, *Pseudomonas aeruginosa* and *Enterobacter* spp.) show adaptive mechanisms in response to antibiotics and

* Corresponding author.

E-mail address: mukbodh@gmail.com (Bodhankar M G).

probably in the forthcoming decade pathogens will show complete drug resistance. Members of ESKAPE family are stigmatized for nosocomial infections. Enzymatic modifications, prevention of antibiotic reflux, adaptive efflux pumps, ribosomal modifications are progressive in ESKAPE pathogens.

Nature is inexhaustible source of secondary metabolites. It includes Plants, Fungi, Endophytes, Invertebrates. Resveratrol, Glabrol, Apigenin, Baicalin, Carvacrol, Sanguinarine, Sakuranetin, Tomatidine, Agasyllin are plant derived metabolites showing activity against ESKAPE pathogens. Instead of pursuing new antibiotics, scholars should focus such inexhaustible sources.

Solitary research and mentality of secrecy have deferred the progress of science and technology. The attitude of the scholars has deteriorated intellectual exchange in the field.

Recently immune complex mediated complications have added toll of diseases including Dengue. Scholars working in different streams need to work in collaboration. In this context UGC guidelines of September 2022 for transforming higher education institutes into multidisciplinary institutions are promising and it is

the significant decision in support of National Education Policy 2020. Merger of single stream institutions, credit mobility between institutions, award of dual major degrees, establishment of linkages, preferential collaboration with industries as mentioned in the UGC guidelines of September 2022 and this will change the entire scenario of the higher education. As a concluding remark it is recommended that, global Pharma sectors, Biotech organizations, Microbiologist's organizations, Biomedical Instrumentation Engineering, Contract Research Organizations (CRO's) and Universities should come forward to exchange their intellectual ideas. Disciplined efforts will surely bring the revolution in Science and Technology.

Author biography

Bodhankar M G, Visiting Faculty

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