

EDITORIAL**Review & Research Articles**Aptamers: Trending perspective in the diagnosis of leishmaniasis **66**Human Gut Microbiota - A Hidden Treasure **73**Pharmacoinformatics Studies to Identify Potential Inhibitors of Key SARS-CoV-2 Enzymes among the Phytochemicals from *Murraya koenigii* and *Vitex negundo* **79****CRIPS Digest****65****66****73****79****91****BUSINESS CORRESPONDENCE**

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The cover page contains a figure from the article of Dr. Kuljit Singh

EDITORIAL

Two review articles and a research article contributed by various leading research groups have been included in this issue.

The recent trend on the use of aptamers in the diagnosis of Leishmaniasis has been described in the review authored by Singh et al. Aptamers are artificially designed single-stranded DNA or RNA oligonucleotides that bind to the target proteins of Leishmania parasites with a high affinity and specificity. The various aptamers selectively bound to leishmanial proteins are confirmed by multiple methods including ELONA, dot blot, immunoblotting, microscopy, and pull-down assays. Aptamers have been shown to mimic antibodies and often offer significant advantages over antibodies. They are generally more stable than antibodies and have a longer shelf life. Unlike antibodies, aptamers' are produced through a chemical process and do not require animals or an immune response for their production. In addition, aptamer's affinity can be modulated by optimizing their recognition sequence and/or by manipulating binding reaction conditions. The stability of the aptamers can be increased further by chemical modification of the nucleotides and altering their secondary structures. These features of aptamers coupled with some limitations on their use have also been highlighted in this review.

In the review authored by Das, the maintenance of a healthy ecosystem in the human gut and gut-related disorders such as constipation, ulcerative colitis (UC), irritable bowel syndrome (IBS), gastroesophageal reflux disease (GERD), and inflammatory bowel disease (IBD) have been discussed. Several factors that cause gut-related diseases include improper diet, age, use of antibiotics and illnesses, global location and ethnicity, and even mode of birth. However, modulation of gut microbiota could happen using a proper diet, probiotics, prebiotics, synbiotics, physical exercise, fasting on microbiota, and the fecal microbiota transplantation (FMT).

Given the paramount importance of the development of COVID-19 inhibitors, Pande and coworkers described the application of pharmacoinformatics in identifying multi-enzyme target inhibitors from natural products. While natural products tylophorine, 7-methoxycryptoleurine, scutellarein, luteolin, ferruginol, betulonic acid have recently been shown to inhibit selectively one target of SARS-CoV-2 enzymes, the studies directed to identify inhibitor targeting multiple enzymes simultaneously are rare. Molecular docking study revealed that among 265 phytochemical constituents of two medicinal plants *Murraya koenigii* and *Vitex negundo*, only six lead molecules have shown inhibitory effect against all four SARS-CoV-2 protein targets, viz. Mpro, PLpro, Helicase and Endoribonuclease. Among the six lead molecules, two natural products proved to have promising binding affinities with a selective target, which was established through molecular dynamics simulations study.

Dr. Joydev K. Laha

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