



## Editor Note: Journal of Bacteriology and Parasitology

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Received date: July 10, 2017; Accepted date: July 18, 2017; Published date: July 27, 2017

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### Editor Note

The study of structure, function, life cycle, mode of infection and evolution of bacteria are the subject matter of 'Bacteriology'. Besides beneficial gut microbiota, there are countless harmful bacteria also exists in the ambient environment as well as in animal's body. Basically the interaction between host animal and harmful bacteria is defined as parasitic one. Hence, the research and studies on bacteriology and related parasitology is having endless scopes for future. In last few decades, genetic manipulations in bacteria have been shown to be beneficial for the humankind. Invention of antibiotics and vaccinations are also notable progress in bacteriology. Beneficial effect of bacteria was extracted in the form of probiotic therapy. Together, association of bacteria and host opened up a new era of investigation with plenty of scopes and surprise.

Journal of Bacteriology & Parasitology is an interdisciplinary journal that publishes scientific manuscripts based on multiple aspects of the structure, physiology, biochemistry and genetic aspects of pathogenic bacteria, viruses and other parasites. It also publishes manuscripts that highlight the physiological impacts of these organisms on the host body including humans as well as other animals. The current issue of the journal published such research articles that were based on the identification and screening on parasitic infections. A brief account of the purpose and outcome of the articles published in the issue is given below.

L- asparaginase is a major therapeutic target biomolecule for the treatment of cancer. The anticancer property of the enzyme is attributed to the fact that L-asparagine is one of the most crucial metabolite, which cancer cells utilize for their survival. The asparaginase enzyme serves to degrade this metabolite thereby starving and eventually killing the cancerous cells. Most L-asparaginase based anticancer drugs make use of microbial sources of the enzyme such as *E. coli* and *Erwinia*. Owing to the increased clinical importance of the enzyme the article published by Hanif [1], is of utmost importance. The author reported a highly potent L-asparaginase producing novel variant of *E. coli* that was isolated from sewage water. The author also proposed and elucidated the role of an agar plate based rapid activity analysis method that can help in quick estimation of the enzyme activity [1]. The study findings are proof of the possibility of existence of novel anticancer agent sources in most unlikely of the sources. The article emphasizes on the need of continued study and screening of such resources for the development of better drugs.

Helminthic infections are probably the most common forms of parasitic infections in both humans and animals. The current issue of the journal hosted an article by Sowemimo and Oluwafemi [2] that highlighted the possible rates of helminthic infections in the Agama agama lizard collected from two different sites namely, Ibadan and Ile-

Ifé, Southwest Nigeria. It was found that all of the 133 lizards studied contained parasitic helminthes inside them (mostly concentrated in the rectal region). It was also found that, the diversity of the helminthes was limited to five species including the nematode species, *Strongyluris brevicaudata*, *Parapharyngodon* spp. and few unidentified nematodes, one cestode, *Oochoristica truncata* and one trematode, *Mesocoelium monas*. Furthermore, the authors tried to screen for the zoonotic potential of these parasitic infections and found that none of these helminthes have ever been reported to inhabit human bodies [2]. Such studies are highly important to access the possible parasitic infections that human beings are at risk to.

Another research article published in the issue pointed out the possible zoonotic potential of *Borrelia burgdorferi*, the bacteria responsible for the occurrence of Lyme disease, especially because it is known to inhabit the ixodid tick species. Some of these ticks studied in the said article were isolated from humans living in the Kenora region of Ontario, Canada. The article published by Scott et al. [3], investigated eight tick species of Ixodidae, viz. *Ixodes angustus*, *Ixodes banksi*, *Ixodes cookei*, *Ixodes gregsoni*, *Ixodes muris*, *Ixodes scapularis*, *Haemaphysalis leporispalustris*, and *Dermacentor albipictus*. Based on the results of PCR amplification of the flagellin B (flaB) gene of *B. burgdorferi* sensu lato (s.l.), it was found that around 41% of the investigated ticks were inhabited by *B. burgdorferi* sensu stricto (s.s.) (the pathogenic strain of the species) [3]. The results provided insights into the enzootic transmission cycle of *B. burgdorferi* s.l. and indicated that this considerably increases the chances of its transmission into humans exposed to such ticks thereby causing Lyme disease. The study warrants further analysis regarding the particular tick species that the bacterium inhabits so that the same can be used in the early screening of patients.

Multidrug resistance is one such phenomenon that possesses the capability to undermine the effects of almost all prevalent pharmaceutical antibiotic formulations. The incessant and improper use of these antibiotics has facilitated the process of development of multidrug resistance in many pathogenic microbial species. While searching for newer antibiotics is one approach to tackle the problem the other option is to screen and identify potential multidrug resistant strains of pathogenic microbes so that medical researchers can use the information to estimate the relative susceptibility of resistivity of those strains and subsequently develop specific modified drug formulations that can be used to prevent the spread of such microbes. The article by Chika et al. [4] presented the results of such a screening that was aimed towards the identification of multi-drug-resistant *Klebsiella* species isolated from cloacal swabs of poultry birds. The process of identification of MDR species was based on the presence or absence of the metallo- $\beta$ -lactamase (MBL) that serves to resist the function of most antibiotics. The results obtained in the study indicated the presence of *Klebsiella* species that were highly resistant against

oxacillin, ofloxacin, gentamicin, ertapenem, cefoxitin and ciprofloxacin [4].

Apart from the above discussed research articles, the current issue also published a review article by Raccurt [5], that presents a wholesome summarization of the extant literature on *Mansonella ozzardi*, a filarial nematode. The article serves to attract the attention of medical researchers regarding the fact that though the organism is highly prevalent and endemic to some of the Caribbean islands, riverine communities of the Amazon Basin, and in Bolivia and Argentina, its etiological and pathophysiological aspects remain largely unexplored [5]. The publication of such articles may help in the conceptualization and conduct of novel research studies that may further serve to unearth hitherto unexplored aspects of such endemic diseases.

## References

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