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# Chinese Herbal Medicines

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## Editorial

### Rudolf Bauer: China anti-COVID-19 success is closely related with the role TCM played



Dr. Rudolf Bauer has profound affection for traditional Chinese medicine (TCM). Thirty years ago, the first TCM hospital was established in Bad Kötzing, Germany, in which he was invited as an expert member of the scientific advisory committee in charge of herbal quality control. As of that time, Dr. Bauer gradually had passions for TCM and also acknowledged its great potential.

Amid the current ongoing coronavirus outbreak, it is of great significance and necessity to set up a mechanism for collaborative TCM project to combat the virus. The epidemic diseases have plagued humanity for centuries, while TCM played pivotal role in fighting against a number of severe infectious diseases (for example, during the SARs epidemic in 2003, integrative medicine of TCM with modern medicine was reckoned as the effective treatment to have cured masses of infected patients thanks to the traditional medicine system). This can also be partially witnessed by the curative effect of using artemisinin to treat malaria in various countries. However, it is still required to provide more solid scientific evidence prior to the global recognition of TCM.

For the future research, Prof. Bauer delivered the following two suggestions:

Firstly, searching for agents which have direct effect on the regulation of the body's immune system, to realize anti-virus activity through inhibition of polymerase, protease or furin protease, and finally to achieve the prohibition of the destructive cytokine storm. Secondly, it is required to have alternative approaches including antibodies, and vaccines against the virus. In the early stage for the purpose of prevention, safe and reasonably priced drugs are the premium choice. Dr. Bauer saw the potential of TCM therapy

and sincerely anticipates to establish a Sino-Austrian collaborative project towards this direction.

Dr. Bauer indicated that global joint efforts are of significance to battling diseases like coronavirus and anticipated that different nations set the common goal at promoting human health and improve global health management. Mutual support and multilateral cooperation are paramount to contain and mitigate the outbreak. To be specific, "we should work together closely in international cooperative projects, share our expertise and knowledge to reach the goal of improving the health of entire humanity", he added.

In Dr. Bauer's viewpoint, TCM emphasizes on the holism, clinically practiced for thousands of years and mainly adopts herbal medicines to treat diseases, which differs in several aspects from western medicine. "As a pharmacognosist, this is what I am interested in most", Bauer said. Chinese herbal medicine contains hundreds or even thousands of components in one herb, which embodies the concept of multi-components working on multiple targets, while western medicine mostly represents a single compound for single target approach. We should realize that it is the comprehensive effect generated by the integrated network of all effective components from Chinese herbs on our body. Therefore, TCM reflects a systemic action, also interpreted as systems biology. Since traditional Chinese medicine has acknowledged the complexity of human body and dealt with complicated changes by using complex multiple target approach, it is more probable to be close to reality. However, just due to its complexity, it is more difficult and challenging to perform the scientific research for TCM.

Herbal medicine also exists in Europe, which is different from TCM mainly in the theoretical background. Herbal mixtures are also practiced in Europe but devoid of the concept of "Yin and Yang", whilst TCM is deeply rooted in the theory basis of oriental philosophy. Of course, the Chinese herbal medicines differ from European ones in the used plant species and related regulations. TCM is heavily weighted and backed by the Chinese government, while European herbal medicine receives few governmental support.

Dr. Rudolf Bauer deeply understands that TCM is based on the accumulation of thousands of years of clinical experiences, which constitutes the most impressive part in the world traditional medicine systems. Oceans of TCM classic books that recorded a slew of precious clinical experiences which have laid solid foundation for modern research and which is also of high value for the develop-

ment of modern drugs. We have just known little about TCM, the situation of which is analogous to the initial stage of actions of newly discovered synthetic drug molecules, however with the difference that TCM relies on hundreds of years of clinical experience. Humanity proceeds only through persistently exploiting the uncharted territories.

In Bauer's opinion, TCM is also advantageous in battling infectious diseases as evidenced by the ongoing effective treatment of COVID-19 by TCM therapy. He considered that prevention and early treatment are the most valuable characteristics of TCM, which emphasizes the preventive treatment of diseases, encourages early interference so as to avoid its proceeding into severe cases and hence lower the medical expenses. Towards this end, the regulation of the body's immune system might be a key factor, and research on the immunomodulation of Chinese herbal medicines should be strengthened. Similarly, it is also of high value to focus on studies of TCM on the chronic diseases and those closely related with life-style, which are referred to as "non-contagious diseases".

The traditionally recorded arrays of clinically used TCM drugs and therapies rendered some aspects of evidence that are required by modern medical systems regardless of deficiency for systematic clinical research. Modern therapeutic drugs require standardized products with clarified active components and confirmed mechanism of action. This type of study should abide by the holistic character of TCM and its individualized and dialectical therapy. This is to say, we should adhere to the herbal complexity and focus on the investigation of mixtures (compound formulas), rather than just the pure compounds from TCM. Modern "omics" cutting edge technologies, such as genomics, transcriptomics, proteomics, metabolomics, etc. facilitate novel approaches and enable to implement these studies in a holistic and system-based manner.

Prof. Rudolf Bauer indicated that we should deepen the research on TCM, particular on its quality control, mechanisms and modes of action. Amid TCM serving the entire humanity, safety, reliability and efficacy should be addressed. Therefore, quality supervision and management of Chinese herbal drugs become an extremely

important task. European Pharmacopoeia Commission has set up a TCM working Party in 2008 to deal with the elaboration of quality monographs of herbal drugs. He added, "to promote this task force, I travelled several times between Europe and China to communicate and discuss with Chinese drug regulating authorities". Through recent years of persistent endeavor, there have been 73 TCM herbal monographs adopted by European Pharmacopoeia, over a third of total 184 herbal monographs in the European Pharmacopoeia. In the last decade, he devoted himself to coordinate the Sino-Austrian Joint Research Project. As the founding president and current board member of "Good Practice in Traditional Chinese Medicine Research Association", he persists in promoting the high-level TCM research in Europe and has trained dozens of post-graduates and Ph.D candidates of TCM specialty in Germany and Austria. Every year, he leads to organize a summer school of Austrian pharmaceutical students to come to China to familiarize themselves with TCM. Dr. Bauer's research achievements have been recorded in a range of scientific journals and books and he firmly believes that TCM could contribute greatly to build a healthy world. However, it is still a heavy task for TCM to be accepted by the world and to be integrated with modern medicine. Therefore, the broad recognition of TCM can only be reached on the basis of solid scientific evidence and it is the urgent need to implement TCM research through extensive international cooperation.

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