Natural Products Of Medicinal Interest

Muram Reddy Subba Reddy
SBVR Degree College, India

The use of natural products which are derived from natural sources for medicinal purpose has been continuing since many centuries. Natural sources such as plants, animals or micro-organisms precedes recorded human history probably by thousands of years. Neanderthals might have been aware of the medicinal properties of various plants, as evidenced by pollen deposits in one of the graves at the site. Throughout our evolution, the prominence of natural products for medicine and health has been vast and enormous. Since our earliest ancestors chewed on certain herbs to get relief from pain, or wrapped leaves around wounds to improve healing, natural products have often been the sole means to treat diseases and injuries. The advent of molecular biology and combinatorial chemistry made possible the rational design of chemical compounds to target specific molecules. Owing to the diverse biological activities and medicinal potentials of natural products, nearly every civilization has accumulated experience and knowledge of their use. Natural product-based medicines also flourished in the Orient. Charaka Samhita, the first treatise devoted to the concepts and practice of Indian Ayurveda, was written around 900 BC and contains 341 plant-derived medicines. The Sushruta Samhita was mainly devoted to surgical practices, but also described 395 medicinal plants and 57 animal-derived products.

Modern chemistry has ushered in a new era for the study and use of natural products. Analytical and structural chemistry have provided the tools to purify various compounds and to determine their structures, which, in turn, has given insights into their action on the human body.

This theory is at least partly supported by the finding that certain human genes have homologues in plants and microbes—at least to the extent that plants and animals use similar signalling molecules and receptors in some cases. Thus, given the similarity of many plant and human genes, it seems obvious that some secondary metabolites produced by plants to modulate their own metabolism should also be able to bind to molecules that have a role in human disease.

Second, the health effects of many plant compounds are not intrinsic to those molecules but are a consequence of the human digestive system processing their metabolites. Willow bark has long been used to ease pain and reduce fever; yet, although the effective component is salicylic acid, willow bark only contains the precursor salicin, which is hydrolysed in the small intestine to salicylic alcohol and further oxidized to salicylic acid by intestinal bacteria. Further examples are the sennosides, which are converted into laxative anthrones by bacteria in the gut. Similarly, conjugated phytoestrogens have to be hydrolysed in the stomach or the gut to exert their oestrogen-like effects. Natural products provide important clues for identifying and developing synergistic drugs that, so far, research has largely neglected.