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Editorial OMICS International

# Polyketides of Therapeutic Significance from Natural Sources

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## Editorial

The term 'polyketide' was coined in 1907 and refers to the secondary metabolites from bacteria, fungi, plants and animals. Polyketides are secondary metabolites with polyketomethylene groups containing multiple ketone groups and are synthezised by serialized reactions of a set of enzymes called polyketides synthase which coordinate the elongation of carbon skeletons by the stepwise condensation of short carbon precursors. Traditionally, polyketides were indirectly known by their biological activities e.g., the purgative materials in cascara, rhubarb, and senna are usually polyketide-derived anthracenes. Traditional antispasmodics, long used in the Middle East to treat angina, contain significant amounts of the polyketide khellin and another very famous example of polyketides in history was the use of coniine containing hemlock to execute Socrates (BCE 399).

Currently, polyketide antibiotics, antifungals, cytostatics, anticholesterolemics, antiparasitics, coccidiostatics, animal growth promoters and natural insecticides are in commercial use. An example of a famous polyketide antibiotic includes borrelidin, an 18 membered polyketides macrolide isolated from a sample of *Streptomyces rochei* in 1949 by Berger & co-workers, was reported to possess profound anti-borrelia activity. Later it was reported to possess antiangiogenic, antimalarial and antiviral properties. Other examples of therapeutic polyketides include rapamycin (immunosuppressant), erythromycin A (antibacterial), epithilone B (anticancer), lovastatin (anticholesterol), rifamycin B (antituberculosis), (E)-resveratrol (chemopreventive) etc. Thus, there are several polyketides that have been reported for their therapeutic potential, thereby, pressing the need to evaluate newer polyketides from natural sources that can serve as potential candidates for drug discovery in order to treat various diseases and ailments and also to overcome the problem of drug resistance.

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