A systematic review of pentacyclic triterpenes and their derivatives as chemotherapeutic agents against tropical parasitic diseases.

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Abstract

Parasitic infections are among the leading global public health problems with very high economic and mortality burdens. Unfortunately, the available treatment drugs are beset with side effects and continuous parasite drug resistance is being reported. However, new findings reveal more promising compounds especially of plant origin. Among the promising leads are the pentacyclic triterpenes (PTs) made up of the oleanane, ursane, taraxastane, lupane and hopane types. This paper reviews the literature published from 1985 to date on the in vitro and in vivo anti-parasitic potency of this class of phytochemicals. Of the 191 natural and synthetic PT reported, 85 have shown high anti-parasitic activity against various species belonging to the genera of Plasmodium, Leishmania, Trypanosoma, as well as various genera of Nematoda. Moreover, structural modification especially at carbon 3 (C3) and C27 of the parent backbone of PT has led to improved anti-parasitic activity in some cases and loss of activity in others. The potential of this group of compounds as future alternatives in the treatment of parasitic diseases is discussed. It is hoped that the information presented herein will contribute to the full exploration of this promising group of compounds as possible drugs for parasitic diseases.