

Advanced Structured Materials

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Bioactive Natural Products for Pharmaceutical Applications

 Springer

Editors

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Chapter 25 Medicinal Attribution of Ginsenoside: A Huge Source of Plant Bioactive Compound

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and K. K. Chandra

Abstract Ginsenosides (G_N^D) are chemically triterpenoid saponin in nature. According to the presence of aglycones, dammarane and oleanane are the two types of G_N^D . These are mostly observed in species of Panax. The researchers have discovered over one hundred fifty substances from stocks, grasses, shoots, florets, drupes from the ginseng plant. G_N^D and their derivatives are the main chemical constituents of the ginseng plant. Recently, G_N^D are gaining increasing interests among natural product scientists. G_N^D have many significant pharmacological activities, including anti-oxidation, immunomodulation, and preventive actions in cancer, inflammation, stress, and hypertension, etc. The metabolism of G_N^D involves two significant metabolic reactions, including acid hydrolysis and hydrolytic reactions oriented from bacterial origins. After metabolism, G_N^D are transformed into a more active G_N^D derivatives. The utilization and changes of unblemished G_N^D , which appears to assume a significant job for their potential wellbeing impacts, are discussed in this chapter.

Keywords Triterpene · Ginseng · Saponin · Gut flora · Biosynthesis · Metabolism

List of Abbreviations

B_{syn} Biosynthesis
 C_N^r Cancer
 C_e^L Cell

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$C_{y k}^T$	Cytokines
C_A^{sp}	Caspase
$C_L^{ch n}$	Cholinergic
C^{ytx}	Cytotoxicity
$D_E^a s$	Disease
G_s^n	Ginseng
G_N^D	Ginsenosides
$I_n^f l$	Inflammatory
I_m^M	Immuno
$L_y^M T$	Lymphocytes
L_s	Lanosterol
M_{Lg}^T	Malignant
M_{Lg}^L	Malignancy
$M_{a s}^f$	Metastasis
N_e^{PL}	Neoplasm
N_E^{ur}	Neuro
P_t^W	Pathway
P_L^t	Plant
P_r^{Lf}	Proliferative
P_H^{SP}	Phosphate
P^{NX}	Panax
S_p^N	Saponin
S_Q^L	Squalene
T_r^d	Triterpenoid
T_U^m	Triterpenoid

25.1 Introduction

Ginseng (G_s^n) is a significant restorative plant (P_L^t) having a place in family Araliaceae. Ginsenosides (G_N^D) and Gintonin are the primary concoction constituents of G_s^n . As indicated by the nearness of synthetic constituents and different land inception, there are four kinds of G_s^n seen in different nations of the world, for example, South China, American, Vietnam G_s^n . It is the root of Panax (P^{NX}) family (Bilia and Bergonzi 2019). The base of G_s^n has been utilized on antiquated occasions where it gives protection from stress, infection, and fatigue. There are a variety of G_s^n based products in the market that are used to advance personal satisfaction. The G_s^n products contain a variety of active constituents, including G_N^D (Fig. 25.1), polyacetylenes, polyphenolic mixes, and acidic polysaccharides. The G_N^D derivatives are steroidal nature and are sometimes called as triterpene saponin (S_p^N), which is a particular form of oleanane families. G_N^D is made from the cytoplasm and plastid region of the $G_s^n P_L^t$. The oral route is the most favorable way for G_s^n administration. It is metabolized by gut flora. Configuration of those compound