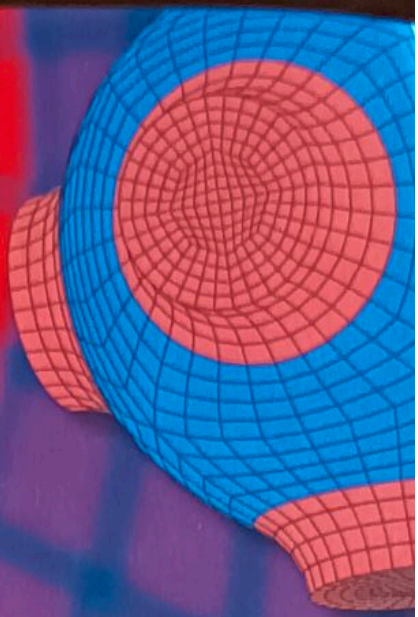
Advanced Structured Materials



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Bioactive Natural Products for Pharmaceutical Applications

Springer

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

Dilipkumar Pal, Souvik Mukherjee, Satish Balasaheb Nimse, 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, mmunomodulation, 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_{syt}	Biosynthesis
C_N^r	Cancer
C_e^L	Cell

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$C_{y}^{T}{}_{k}$	Cytokines
C_{A}^{sp}	Caspase
$C_{L}^{h}{}^{n}$	Cholinergic
C^{ytx}	Cytotoxicity
$D_{E}^{a}{}_{S}$	Disease
$G^{n}{}_{S}$	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
$M^{L}{}_{g}$	Malignancy
$M_{a}^{\dagger}{}_{s}$	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
$T_{r}^{I}d$	Triterpenoid
T_{U}^{m}	Triterpenoid

25.1 Introduction

Ginseng ($G^{n}{}_{S}$) 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 $G^{n}{}_{S}$. As indicated by the nearness of synthetic constituents and different land inception, there are four kinds of $G^{n}{}_{S}$ seen in different nations of the world, for example, South China, American, Vietnam $G^{n}{}_{S}$. It is the root of Panax (P^{NX}) family (Bilia and Bergonzi 2019). The base of $G^{n}{}_{S}$ has been utilized on antiquated occasions where it gives protection from stress, infection, and fatigue. There are a variety of $G^{n}{}_{S}$ based products in the market that are used to advance personal satisfaction. The $G^{n}{}_{S}$ 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 $G^{n}{}_{S}$ P_{L}^{t}. The oral route is the most favorable way for $G^{n}{}_{S}$ administration. It is metabolized by gut flora. Configuration of those compound