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Review Article

A Review on Medicinal chemistry of Sarbocalm

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ABSTRACT

Sarbocalm is recently marketed broad spectrum analgesic formulation of ayurvedic nature. The clinical merit of this was elucidated by structural plausibility and rationality of mechanism through non-ayurvedic approach.

Keywords: Ayurvedic formulation, analgesic, anti-inflammmatory, polyherbal, natural products clinical merit.

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INTRODUCTION

Ayurveda[1-6] is holistic medicine and 5000 years old. It is based on the concept of tridosha- Vata, Pitta and Kapha. Their bioenergies influence the human health. They should be in equilibrium for perfect health, through integration of physical, mental, emotional and spiritual energies. Sarbocalm (Manufactured by- SARB HERB HEALTH CARE PVT. LTD. 24 MayurVihar, Sahashtradhara Road Dehradun, 248001, Uttrakhand, India).is recently marketed polyherbal formulation, which cures all types of pain. Its broad spectrum claim surprised us, therefore an attempt was made to rationalize its clinical merit through non- ayurvedic approach.

Theoretical methodology: Sarbocalm has relevant natural products of analgesic, anti-inflammatory, anti-pyretic and anti- oxidative activities. Herbal Chemistry[7-12] revealed that terpenoids, flavonoids, alkaloids and steroidal types of natural compounds are present. The only chemopharmacologically important structures were selected from each herb Table 1.

Their vulnerable structural features were compared with three categories-: Opioidal (morphine like), steroidal (pregnane like), non-steroidal (NSAIDs) marketed drugs. The common functionalities of each category were identified.

Opioidal-: tertiary nitrogen, aryl ring and hydrogen bonding group. Berbamine has such opioidal features.

Steroidal-: Guggulsterones and guggulsterols have structural resemblances with pregnane type of anti-inflammatory steroids.

Non-steroidal-: NSAIDs are acidic drugs. The carboxylic, phenolic and enolic groups of terpenoidal and flavanoidal structures share acidic character, essential for bioactivity. galangin, quercentin, sennosides, ricinoleic acid,

myrrhanols have acidic functions. Therefore Sarbocalm has the structural plausibility by the virtue of herbal chemicals.

Ayurvedically pain is caused by aggravated vata which disturbs the well balanced equilibrium of tridosha. Possibly Sarbocalm restores the equilibrium by diminishing the aggarvation of vata.

The non- Ayurvedic mechanism of this polyherbal formulation has anti- nociceptive effect. Terpenoids[11, 12,33-35] are inhibitor of pro- inflammatory mediators (NK-KB, TNF-α, PGE2, cytokines, NO and interleukins). They also suppress cycloxygenase-2 gene expression and block pain signaling pathways. Flavonoids[36,37] target voltage gated K^+ channels. They block outward K^+ currents, followed by anti- nociceptive effect which disorganized the evolution of inflammatory process. Sarbocalm has rationality of mechanisms.

Table 1: Twelve botanicals of SARBOCALM and their selected compounds

Sr. No.	Name of the herb	Selected Compounds	References
1.	Alpina galangal - 20 mg.	Galangin,Quercentin,Kaempferol	13
2.	Berberis aristata -10 mg.	Berberine, Berbamine	14
3.	Cassia fistula -60 mg.	Rhein, Sennosides	15
4.	Celastrus paniculatus -20 mg.	Celasterol	16-17
5.	Cirullus colocynthis -20mg	Iso- vitexin	18-19
6.	Mahayogral guggul -100 mg.	Myrrhanol,guggulsterols	20-25
7.	Physalls somnifera - 20 mg.	Withaferin A	26
8.	Ricinus communis Linn. - 40 mg.	Ricinoleic acid	27
9.	Smilax china -10 mg.	Ellagic acid, Gallic acid	28-29
10.	Su-in-Kuchla -10 mg.	Rutin, Quercentin, Strychnine, Brucine	30
11.	Tinospora cordifolia - 20mg	β –sitosteral, Jatrorrhizine	31-32
12.	Yograj guggul - 150 mg.	Myrrhanol,guggulsterone	20-25

DISCUSSION AND RESULT:

An innovative look at clinical merit of Sarbocalm was suggested, considering three chemopharmacological aspects- Pharmacodynamic effectiveness pharmacokinetic compliance and minimization of toxicity.

Sarbocalm is a polyherbal formulation. It has broad spectrum as it takes care of all types of pain. The therapeutic interventions of this formulation were rationalized with chemopharmacological view point.

The acid-base chemistry of herbal chemical structures revealed that they have acidic (COOH, phenolic, enolic) and(tertiary Nitrogen) types of functionalities for interaction with biological targets. At physiological pH, they behave as anionic and cationic species; therefore Sarbocalm has two pharmacological compartments of acidic and basic drugs. Anionic drugs should interact with basic amino acid residues of the target whereas cationic drugs interact with the acidic amino acid residues.

The herbal chemicals should have maximal interactions for pharmacodynamics effectiveness. Possibly this corresponds to binding affinity or sites. The efficacy of the formulation supposed to be dependent on synergistic and antagonistic actions. The herbal compounds have analgesic, anti-pyretic and anti-inflammatory properties, which are complementary to broad spectrum of the formulation. Modern scientific research[10] has validated the bioactivities present in this formulation, attributed by chemical composition.

The majority of compounds showed the dominance of the hydrophobic groups. Lipophilic guggulsterols and guggulsterones further enhanced the hydrophobic character. It appears that profound lipophilicity of this formulation is additive and supports optimal absorption and distribution. Sarbocalm lacks toxic doses of plants and based on codified texts of Ayurveda[38-40], therefore margin of safety may be quite satisfactory.

Finally it can be inferred that clinical merit of Sarbocalm meets basic therapeutical qualities of the functional dose.

CONCLUSION

SARBOCALM is the most recently marketed broad spectrum ayurvedic formulation. The herbal chemicals share vulnerable functionalities of opioidal steroidal and NSAIDs, therefore structure plausibility support chemical composition of this formulation. The non-ayurvedic mode of action of terpenoids and falvonoids were studied, the rationality of mechanism favors the importance of pharmacological synergy. The clinical merit based on chemopharmacological parameters led to conclude that

SARBOCALM has optimal therapeutical validity at functional dose.

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