

dissolution rates than those formulated employing solvent deposited systems.

Thus, the dissolution rate of meloxicam could be significantly enhanced by its solid dispersion in PVP, HPMC, HPC and PEG and also by solvent deposition on water soluble and insoluble excipients namely lactose, soluble starch, MCC, DCP and silica gel. When the solid dispersions in PVP and HPMC and the solvent deposited systems on MCC and DCP were formulated into tablets by

conventional wet granulation method, the resulting tablets, apart from fulfilling all official and other specifications, exhibited higher dissolution rates of meloxicam.

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Synthesis and Antimicrobial Screening of a New Guggul Preparation

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The *in vitro* Antimicrobial activity of a new guggul preparation has been investigated against *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Alcaligenes faecalis*, *Serratia marcesens*, *Escherichia coli*, *Micrococcus glutamicus*, *Bacillus thermodenitrificans*, *Bacillus subtilis*, *Bacillus pumilus*. The preparation containing a 5:10 proportion of guggul and coconut oil showed more antimicrobial activity than other preparations. Guggul and coconut oil when tested alone failed to show any antimicrobial activity.

Guggul is the oleo-gum resin obtained by the incision of the bark of the plant *Commiphora weightii* Family Burseraceae. It contains 60% of resin, 30% of gum and 0.5% to 1.5% of volatile oil. Guggul is used as antiinflammatory, antirheumatic, hypolipidemic and hypocholesteremic drug¹. The present investigation is aimed at preparing a new formulation containing guggul and coconut oil. The formulation prepared was screened for antimicrobial activity using agar-cup plate method².

The new formulation was prepared using different proportions of guggul and coconut oil that include 5:10, 6:10, 7:10 and 5:15 (w/v). Guggul and coconut oil mixtures were kept on a hot plate at 70° for 10 minutes with continuous stirring. One gram of the prepared prepara-

tion was dissolved in 5 ml of carbon tetrachloride (CCl₄) which was tested for antimicrobial activity against all organisms. Guggul and coconut oil were also dissolved separately in CCl₄, which was previously tested for antimicrobial activity against all organisms and found negative.

In vitro screening of antimicrobial activity was carried out against *S. aureus*, *S. epidermidis*, *P. aeruginosa*, *P. vulgaris*, *A. faecalis*, *S. marcesens*, *E. coli*, *M. glutamicus*, *B. thermodenitrificans*, *B. subtilis* and *B. pumilus*. The plates were inoculated with 18 h culture of respective microorganisms. The cups were made aseptically with a cork borer of 6 mm diameter and 50 µl of test solution was added into each cup using a micropipette under aseptic conditions.

The plates were kept in a refrigerator for 2 h to allow

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TABLE 1: ANTIBACTERIAL ACTIVITY OF THE FORMULATION

Test organism	Growth inhibition (Zone diameter mm)	
	CCl ₄ (control)	Preparation (5:10 Guggul:Oil)
<i>Staphylococcus aureus</i>	-	16
<i>Staphylococcus epidermidis</i>	-	-
<i>Pseudomonas aeruginosa</i>	-	11
<i>Proteus vulgaris</i>	-	-
<i>Alcaligenes faecalis</i>	-	-
<i>Serratia marcesens</i>	-	-
<i>Escherichia coli</i>	-	11
<i>Micrococcus glutamicus</i>	-	14
<i>Bacillus thermodenitrificans</i>	-	12
<i>Bacillus subtilis</i>	-	11
<i>Bacillus pumilus</i>	-	12

diffusion of the test preparation followed by incubation at 37±0.5° for 18 h. The zone of inhibition of microbial growth was measured after incubation. Each experiment was carried out in triplicate and the mean diameter of inhibition zone recorded.

Results of screening of antimicrobial activity are summarized in Table 1. These preparations showed significant inhibition of the growth on *S. aureus*, *P. aeruginosa*, *E. coli*, *M. glutamicus*, *B. thermodenitrificans*, *B. subtilis*, and *B. pumilus*. Preparation containing 5:10 (w/v) proportion of guggul:coconut oil showed more antimicrobial activity than other preparation. The degree of inhibition ranged from 11 mm to 16 mm against test organisms.

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Antimicrobial Activity of the Essential Oil of *Feronia elephantum* Correa

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The essential oil from the leaves of *Feronia elephantum correa* (Syn. *Feronia limonea*(L.) Swingle, family Rutaceae), rich in methyl chavicol, has been studied for its antibacterial and antifungal activity against ten bacteria and ten fungi using filter paper disc agar diffusion technique. The oil exhibited strong to moderate activity against most of the test organisms. *Bacillus subtilis*, *Escherchia coli*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Shigella sp.*, *Aspergillus niger*, *Rhizopus nodosus*, *Trichophyton rubrum* 5S and *Trichoderma viride* had remarkable susceptibility to the oil.

Feronia elephantum (L.) Correa [syn. *Feronia limonia* (L.) Swingle, family - Rutaceae] is a moderate sized deciduous tree which is a native of India. The fruits, seeds and leaves of this tree have been reported to possess many medicinal properties¹ according to the Indian sys-

tem of medicine. The leaves are astringent and carminative and are prescribed for vomiting, hiccough, dysentery, indigestion and slight bowel affections of children¹. The pulp of the fruit is used as a condiment. The leaves are aromatic with a smell of anis seed. The fruits are considered tonic, antiscorbutic and alexipharmic and taken as such or in the form of a sauce². The essential

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