

HERBALDRUGINTERACTIONS

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Abstract:

Introduction: Herbal drug interactions is any modifications caused byherbal substancestoanother prescriptionmedication onthe body.

Consequences can be beneficial undesirable and harmful effects. Theimportance of herbsand drugs can be administered in combination withdifferent drugs. Consequently, the mechanism of herbal drug interactionsremains an understudied area of pharmacotherapy systematic evaluation ofherbal product drug interaction liability and characterizing the interactionpotential of such constituents. To estimate the pharmacokinetics ofindividualfacilitativeprospectiveidentificationofherbaldruginteractions.

Objective:Herbal type of interactions are a type of interactions where theincompatibility between the dosing of Herbal medications in different timeintervals. Almost 70% of world has been using this herbal medication asalternative source for that has grown tremendously in developed countriesas well as developing countries. Due to increase in consumer data, theefficacy and safety has been elevated. Herbs are often administered withthereupticdrugsfor major treatments.

Conclusion: In our view we highlight the importance of herbal medicines,reasons for herbal drug interactions and pharmacokinetic andpharmacodynamics effects of herbal drugs. As well as the statically data ofherbal drug interactions and the majority people using this herbalmedicines, search range of population to herbal medicines, advantages anddisadvantages of herbal drugs and its interactions and plants which arereported for herbal drug interactions including clinical outcomes byreducing theherbaldruginteractions

Keywords:cytochrome P450 , herbalpreparations, drug-druginteractionsandherbalinteractions.

HERBALDRUGINTERACTIONS

Herbal Drug: Herbal drugs are natural medicines which are extractedfromdifferentsourceofenvironmentlikeplants andanimals etc.

INTERACTIONS: Interactions are a type of incompatibility reactionswhichmostlyoftenoccur duringthepreparation ofcertainmedicines.

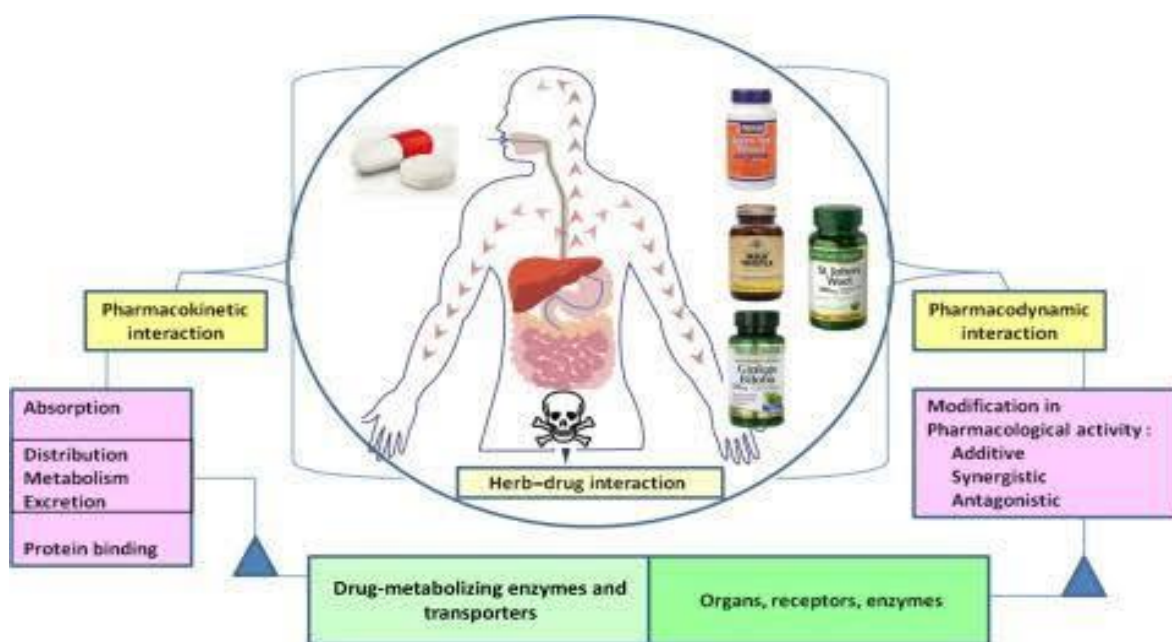
HERBAL DRUG INTERACTIONS: The alterations or changes occurredbythe herbal substancestoother appropriatemedicationsin abody

- Elevated / decreased effects considered as herbal drug interactionsrespectively

REASONSFORHERBALDRUGINTERACTIONS

- Noqualitycontrolandassuranceandsafetyof drugs
- Noadvance research infields
- Blindbelievein ayurvedicmedicines
- Avoidsofpatientessensitivity
- Adulterationinherbaldrugs

Herbal drug interactions are basically 2 types1.Pharmacokinetic Herbal drug interactions2.Pharmacodynamicherbal druginteraction



1. PharmacokineticHerbaldruginteractions.

Kinetic level of interactions in herbs mainly deals with four major factors.Theyare

1. absorption
2. distribution
3. Metabolism
4. Excretion

PHARMACOKINETIC
INTERACTION

Parameter	Increases	Decreases
Absorption	Ginger	Fibers
	Green tea	Mucilage containing herb
	Black pepper	Mucilage containing herb
Metabolism	Guggul	Grape juice
Elimination	Laxative (Aloe)	Liquorices
	Diuretics herbs	

1. Absorption : Absorption is a process where active ingredients dissolve into blood stream.
 For example
 Pglycoprotein [MDR1] with the vinca Create gastrointestinal tract disturbance andDecrease bio availability.

PHARMACOKINETIC
INTERACTION

Herbal drugs which shows Interaction related to Absorption

ALOE VERA	Interferes with drug absorption through Laxative action (Aloe latex)
	Decrease transit time
	Decrease Intestinal Fluids
GINGKO BILOBA	Decrease effectiveness of Alprazolam by decreasing its absorption.
	Ginkgo decreases absorption of Alprazolam rather than inducing hepatic metabolism of alprazolam.
GINGER	Enhance the absorption of sulfiaguanidine and decreases blood sugar

PHARMACOKINETIC
INTERACTION

Herbal drugs which shows Interaction related to Metabolism

MILK THISTLE	Up regulates the action of P450 liver enzyme
	Break drug down more efficiently
	May lower blood levels of the drug, which can interfere with the desired action.
GINGKO BILOBA	Decrease effectiveness of Alprazolam by decreasing its absorption.
	Ginkgo decreases absorption of Alprazolam rather than inducing hepatic metabolism of alprazolam.

2. Distribution: Distribution where arrangement of different ingredients in the blood stream.

Forexample,;

With the combination of cinnamon and Cannabis the protein bondcoadminister second displacement non active drug increases withunboundeddrug.

3.Metabolism: Metabolism is a process were complex moleculesbreakdowninto simplemolecules

For example.,

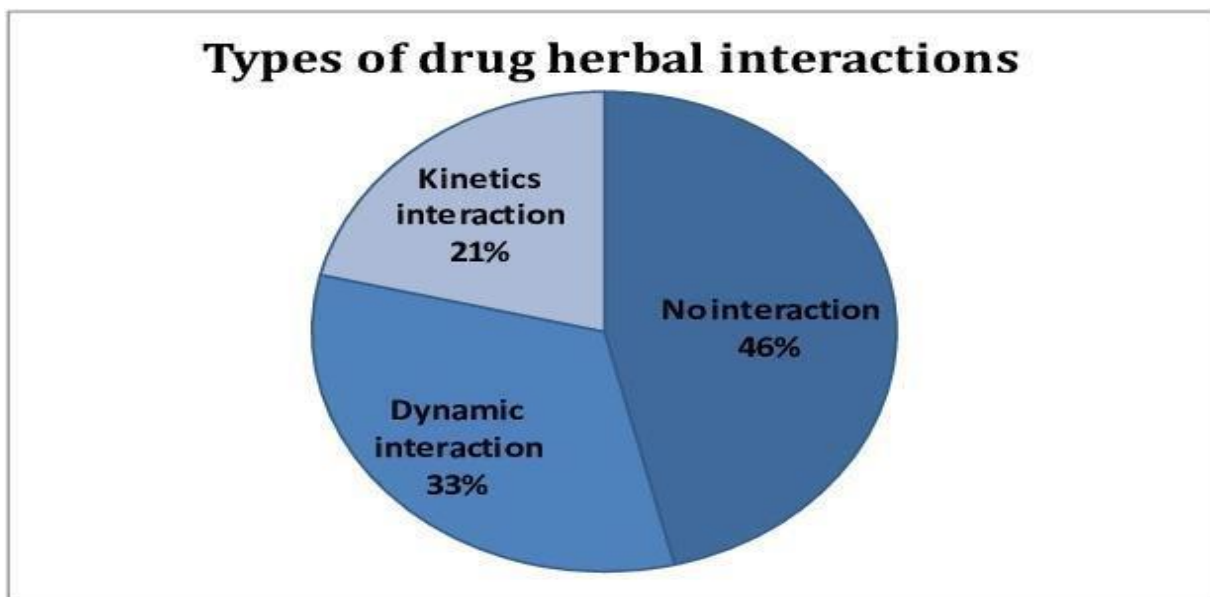
Cytochromep450withethechinaceaformsmilkthistle

4.Excretion: It is a process where the unwanted materials dumped outerbody.

For example.,

Diuretics when given with nigella or pasley increase in retention isobtained.

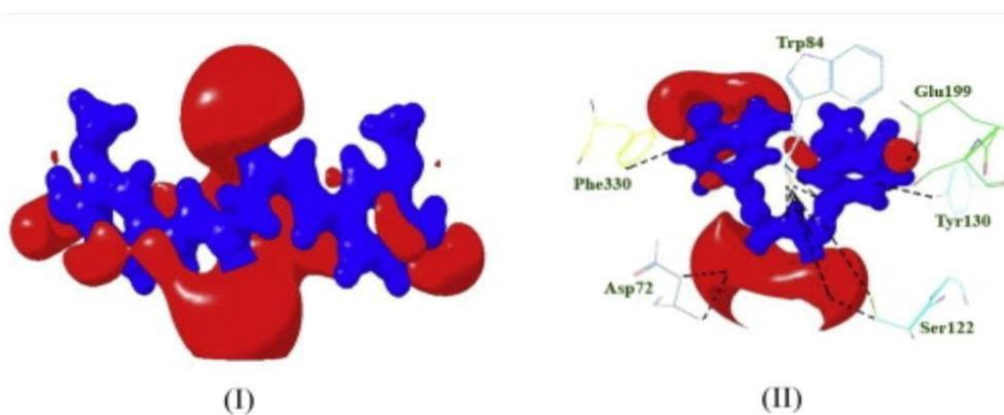
2.Pharmacodynamic Herbal Drug interactionsThisis also dividedinto 3 tpestheare



- Interferencewith drugandreceptor
- Interferencewithphysiologicalfactors
- Antagonisteffect

1. Interference with Drug and receptor

For example: curcumin with molecular docking reacts with active site 2 and Ache inhibitors which portrays as following linear graph



2. Interference of physiological factors

For example., cascara interactions with glycosides of cardiovascular thiazides.

3. Antagonist effect

Antagonist effect where drug and its particular receptors' Compatibility by drug interactions.

Other Important Interactions

HERBS	INTERACTION
Cinnamon	Blood-glucose lowering effects of conventional anti-diabetics
Coffee	Phenylpropanolamine and coffee may cause the mania or mood swing
Capsicum	Moderately Reduces the absorption of dietary iron Slightly increases the absorption of theophylline and increase its side effect.
Garlic	Hypotension with ACE inhibitors (Prils) With antiplatelet drugs, increases risk of bleeding. Decreases plasma concentration of Saquinavir, decreases the drug effect.

ADVANTAGES OF HERBAL DRUG INTERACTIONS

- Rapid and safe, noninvasive and convenient methods
- Avoid drug disintegration in gastrointestinal tract
- First pass metabolism allowing enhancing bioavailability
- Reduction of systemic side effects
- Bioavailability of low molecular weight drugs
- Rapid drug absorption via highly vascularized mucosa
- Easy administration

DISADVANTAGES OF HERBAL DRUG INTERACTIONS

- Rapid elimination of drug substances from nasal cavity due to mucosal clearance
- Nasal congestion due to cold allergic condition may interfere with technique of drug delivery
- Suitable for potential drugs since only limited volume can be sprayed through nasal cavity
- Frequent use of this route leads to mucosal damage
- Mechanical loss due to improper administration
- Mechanism of drug transport are still unclear

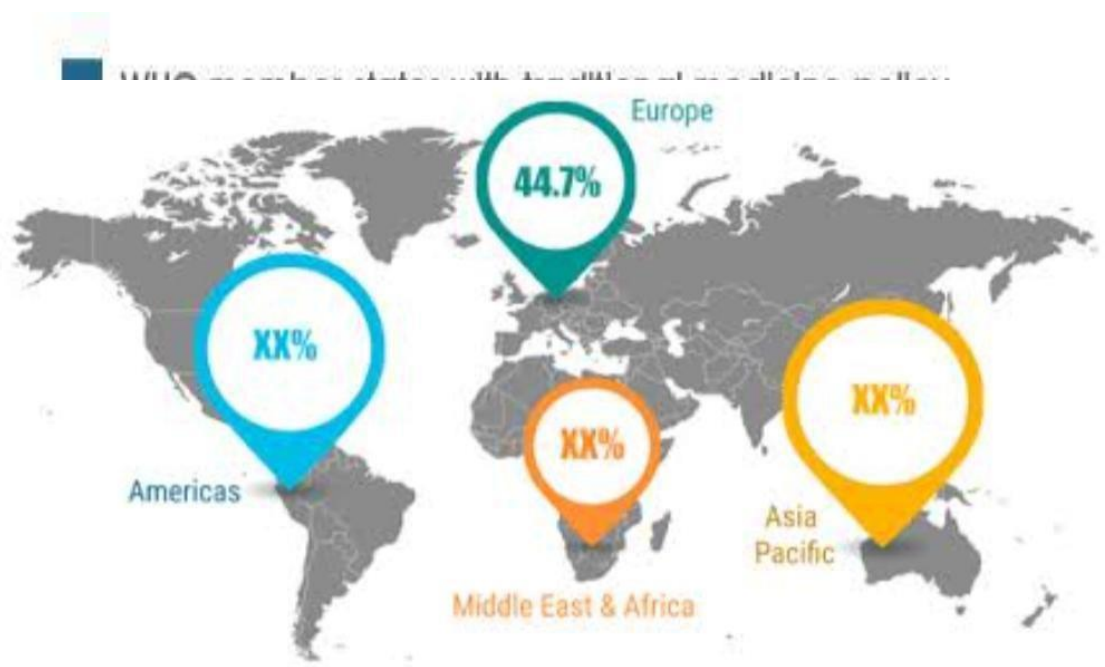
CLINICAL SIGNIFICANCE OF HERBAL DRUG INTERACTIONS

- Patient characteristics
 - Nature of pharmacodynamics response
 - Mechanism of interaction
 - Safety management of herbs and drugs
 - Quality of product
 - Size of dose
 - Duration of therapy
 - Time course of interaction
 - Order and timing of administration
- HERB-DRUG INTERACTIONS
- Bleeding when warfarin is combined with garlic
 - Mild serotonin syndrome when S.J.W is taken with serotonin reuptake inhibitors
 - Increased risk of hypertension when tricyclics is combined with yohimbine
 - High soluble plant fibers decreased drug absorption
 - Aloe Vera with digoxin increase cardiac toxicity

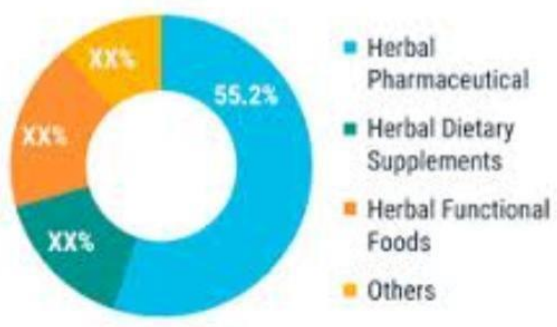
S.No	Herb	Interaction
1	Bearberry	Urinary infections
2	Cascara	Cardiac diseases
3	Garlic	Anti-coagulant effect
4	Ginger	Anti-platelets
5	Grape	Asthma

STATIC DATA OF HERBAL DRUGS

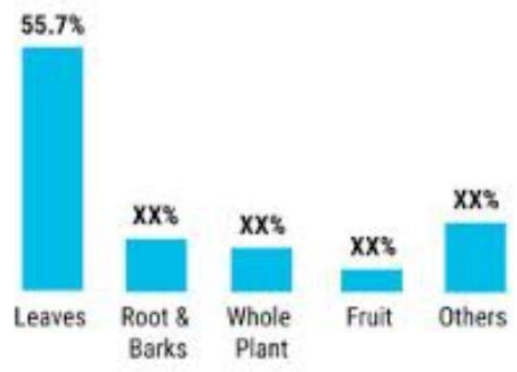
The global herbal medicines market size is approximately 6.3 billion by the year of 2020. According to remedy review more than 70% of population chosen this natural medicines rather than other medications because it is affordable and easy to obtain. Standardization and quality control of raw materials and herbal formulations became a major challenging in a developing countries.



BY PRODUCT TYPE 2017 (%)



BY SOURCE 2017 (%)



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