Global Journal of Medical Research: B
Pharma, Drug Discovery, Toxicology & Medicine
Volume 18 Issue 1 Version 1.0 Year 2018
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

A Review on Medicinal Plants used for Nausea and Vomiting in Persian Medicine

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GJMR-B Classification: *NLMC Code: QV 55*

Strictly as per the compliance and regulations of:

A Review on Medicinal Plants used for Nausea and Vomiting in Persian Medicine

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I. Introduction

Nausea and vomiting are common digestive problems that affect the quality of life. They also are common problems in patient with chronic disease conditions (40-70%) such as cancer. Nausea and vomiting can be disease or adverse effect of drugs. It can be due to various reasons such as: motion sickness, pregnancy, stomach irritation, chemotherapy, and post-operative factors [1-3].

Nausea is an unpleasant subjective sensation and a feeling close to vomiting. Vomiting includes two stages; retching stomach and exit of the material through the mouth [4, 5].

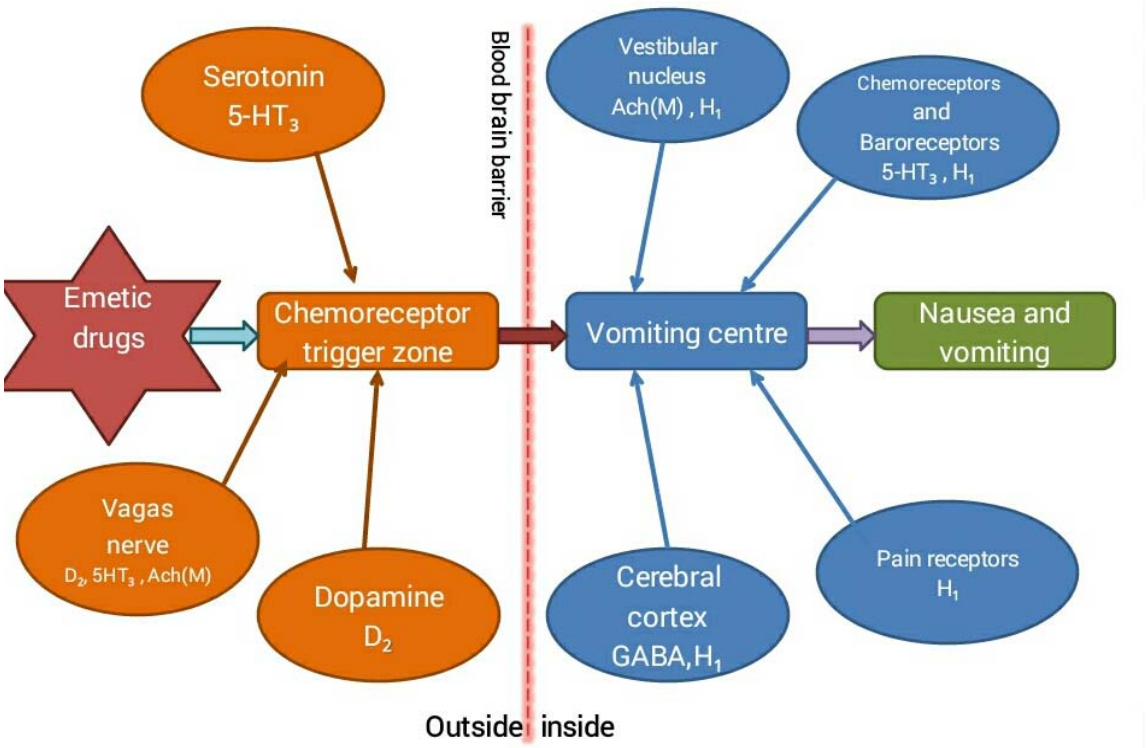

Fig. 1: This figure shows some of the factors that initiate vomiting and the neurotransmitter that involved in nausea and vomiting and where the antiemetic drugs involve to preventing nausea and vomiting

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Nausea and vomiting mechanism is complex. Excessive secretion of saliva occurs while nausea that shows the involvement of autonomic nervous system, so nausea is an event that involves a wide range of central nervous system and gastrointestinal tract [6].

There are two areas of the brain that are important in vomiting; the vomiting centre (VC) and the chemoreceptor trigger zone (CTZ) (Fig. 1). The VC makes network in parts of the brain stem and coordinates the actions of smooth muscles and skeletal functions involved in the vomiting [7, 8].

Persian medicine (PM) is a set of knowledge and practices used for the prevention, diagnosis and treatment of diseases [9]. This knowledge has been transferred from generation to generation since ancient times. World Health Organization (WHO) to implement the slogan "Health for all" is intended to develop traditional medicine, this decision was based on two fundamental: first, lack of people (up to 80% in some areas) to access primary health care and second, the lack of satisfaction with the treatment of modern medicine [10-13].

II. Factors that Initiate Vomiting

There are number of medicines to control of nausea and vomiting (Table 1) that with these antiemetic drugs, vomiting can be prevented in up to 70–80 % of patients [14]. Table 1 shows the modern drugs that use to treatment of nausea and vomiting.

III. Methods

In this article we used "comprehensive library of Islamic and traditional medicine software" and from about one thousands book we choose six important Persian Medicine (PM) book such as: Canon of medicine, Al-Abnieah, Tohfeh, Ekhtiarat, Al-shamel and Makhzan-ol-advieh. These books are written between 9-19 centuries. In other hand we searched Scopus, Pubmed, Google scholar and Science Direct for some of these plants that are effective in treatment of nausea and vomiting.

There are several terms that associated with nausea and vomiting in PM such as: “Ghe’y”, “Ghesyan”, “Tahavo”, and “Taghalobenaphs” refers to ‘’vomiting’’, ’’nausea’’, ‘’retching’’, and ’’permanent nausea’’, respectively. Herbal medicines specifications include: scientific, PM and common names, also their part(s) of used, some notifications and references that can use as drug to control of nausea and vomiting in PM were presented in this article.

IV. Results and Discussion

In this paper, we investigated six important books of Persian medicine and the result was about 126 plants that use for treatment of nausea and vomiting and in this paper 94 plants were presented.

Table 2 shows the plants that used for curing nausea and vomiting. This table sort by family name of plants and including data on the subject of: scientific name, PM name, and common name, part used, notice and the collection source.

Table 1: Modern drugs that use for treatment of nausea and vomiting

Line	Chemical class	Antiemetic drugs	Root	Neurotrans mitters	Rider	References
1	5-Hydroxy-tryptamine (5-HT3) antagonists	Ondansetron	Oral ,**IV	5-HT	Common side effect includes headaches, flushing, constipation/ diarrhea, malaise/ fatigue and bradycardias.	[15-17]
		Granisetron	Oral, IV, patch			
		Dolasetron	Oral, IV			
2	Steroids	Dexamethasone	IV	-	As Anti-nausea drug that is effective in *PONV and chemo-therapy	[18, 19]
3	Antihistamines	Cyclizine	Oral	Histamine	Pain while injecting and tachycardia limited it use. It often use in motion sickness. IV administration can cause tissue injury including: gangrene, burning.	[20-22]
		Promethazine	Oral, IV , ***IM			
4	Phenothiazines	Prochlorperizine	IV ,IM	Dopamine	Extra-pyramidal effect and sedation limited it use. Avoiding using in Parkinson’s patient.	[22-24]
		Perphenazine	IV			
5	Butyrophenones	Droperidol	IV, IM	Dopamine	It has the risk of sudden deaths because of long QT syndrome and torsades de pointes. 0.625-1.25 mg may be more effective for PONV	[25]

6	Benzamides	Metoclopramide	IV, IM , oral	Dopamine	Following in a single dose Extra-pyramidal side effects may occur up to 72 hours	[26]
7	Artimuscarinics	Hyoscine	IM, IV , SC, patch	Acetylcholine	-	[27]
8	NK_1	Aprepitant	Oral ,IV ,	Substance P	It use for nausea and vomiting induced by chemotherapy. It is effective for POVN	[28]
9	Cannabinoids	Nabilone	Oral	-	The effect of these two drugs are currently being investigated -they use in control of emetic induce by chemotherapy. They are not effective in PONV	[29-31]
		Tetrahydrocannabinol	IM, IV			

**PONV: Postoperative nausea and vomiting **IV: intravenous ***IM: intramuscular*

Table 2: The plants that used in Persian medicine to treatment of nausea and vomiting

Family	Scientific name	Persian Medicine name	Common name	Part(s) Used	Notice	References
Acanthaceae	*Justicia adhatoda*	Ajhose	Tentacle	Root	Its root can use for treatment of nausea	[32-34]
Alliaceae	*Allium cepa*	Bassal	Onion	Bulb	Cooking or fostering it with vinegar prevents nausea.	[32, 33, 35]
Anacardiaceae	*Mangifera indica*	Anbaj (anbeh)	Mango	Peduncle	Peduncle near the leaf with black pepper can stop vomiting.	[32, 33, 36]
	Pistacia intigerrima	Kakera	Crab's claw, Kakkar	Gall	It is more effective in vomiting.	[32, 33, 37]
	Pistacia lentiscus	Mastaci	Mastic	Resin	Drinking of it with appropriate spices use for treatment of vomiting.2.5 g of it with 450 g of water boil in a new pitcher until 1/3 of it remain, then drink it, if to be finished use a new pitcher, it use for treatment of emesis.	[32, 33, 38]
	Pistacia vera	Fastagh	Pistachio	Peel and kernel	Macerate external Green peel in water and drink it can prevent vomiting. It can prevent nausea and lock vomiting.	[32, 33, 39]
	Rhus coriria	Sumac	Sumac	Seed and leaf	Seed that be crushed with caraway-seed can calm emetic by drinking with cold water, in a person that always have emesis. (12.5 g of the syrup.) It remove/calm emetic.	[1, 32, 33]
Apiaceae (Umbelliferae)	*Anethum graveolens*	Shabat (shivid)	Dill	Leaf and seed	Eating its cooked leaves and seed remove nausea	[32, 33, 40]
	Apium graveolens	Karafs	Celery	Leaf, seed and root	Drinking 37.5 g of extract/7.5 g of it/ 12.5 g of cooked root, use for remove emesis. Drinking of leaf and root that mixed with honey can calm emesis.	[32, 33, 41]

	Carum carvi	Cumon	Caraway- seed	Seed	It can be effective in emesis.	[32, 33, 42]
	Carum copiticum	Nankhah	Aniseed, Bishop's weed	Seed	Up to 7.5 g to improve and calming of emesis.	[32, 33]
	Coriandrum sativum	Kazbareh	Coriander	Fruit	37.5 g of juice and 75-112.5 g of it can lock and remove emesis. When it combines with sumac can be more effective in preventing of vomiting. 5 g of it with 7.5 g of plantain water prevent vomiting.	[32, 33, 43]
	Cuminum cyminum	Keroya	Cumin	Seed	-up to 12.5 g of syrup to prevent vomiting.	[32, 33, 44]
	Foeniculum vulgare	Razianj	Fennel	Seed, root	Alone or with appropriate spice use for treatment of nausea. With cold water is effective for nausea with fever.	[32, 33, 45]
Asphodelaceae	*Aloe barbadensis, A. Littoralis*	Sabar	Aloe	Gel of outer leaf	It can prevent permanent nausea.	[32, 33, 46]
Asteraceae (compositae)	*Artemisia dracunculus*	Tarkhon	Tarragon	Aerial parts	It is gastrotonic and can prevents nausea and vomiting	[32, 33, 47]
	Onopordum acanthium	Dehamasa	Artichoke	Leaves, Root	It can calm vomiting	[32, 33, 48]
	Cichorium intybus	Handba	Chicory (Endive)	Leaf	Drinking of its extract use for treatment of vomiting. 225 g of juice use to calming emesis.	[32, 33, 49]
Berberidaceae	*Berberis asiatica*	Hazaz hendi	Chutro, Rasanjan	Fruit	It can calm vomiting.	[32, 33, 50]
	Berberis vulgaris	Emberbaris	Barberry	Fruit	75 g of Barberry juice prevent nausea.	[32, 33, 51]
Urticaceae	*Parietaria officinalis*	Azanofar	Wall palitory	Whole plant	Drinking of 5 g of syrup can calm nausea	[32, 33, 52]
Brassicaceae (Cruciferae)	*Descurainia sophia*	Khobbe	Hedge-mustard/ Garlic hedge-mustard	Seed	Decoction of its seed with water or rose water that drink 0.5 g of it warmly, can calm vomiting and if vomiting continue use it again until it stop	[32, 33, 53]

Burseaceae	*Boswellia sacra*	Condor	Frankincense (Oliban)	Oleogum resin	It use with Mastic for treatment of emesis. 1.25 g of syrup can lock vomiting. It can remove/prevent emesis.	[32, 33, 54]
Cannabaceae	*Cannabis sativa*	Ghanab	Hemo-seed	Seed	The seed of it can calm nausea.	[32, 33, 55]
	Humulus lupulus	Ashne	Bruon	Whole of plant	7.5 g of cooked plant lock/ remove emesis. It also can calm nausea It can lock and cut vomiting	[32, 33, 56]
Caricaceae	*Carica papaya*	Pepite	Papaw (papaya)	Fruit and latex	Drinking of it alone or with combination of appropriate spices, for vomiting that don't stop.	[32, 33, 57]
Cistaceae	*Cistus ladaniferus*	Lazan	Labdanum	oleo-resin	It use for preventing of nausea.	[32, 33, 58]
Combretacea	*Terminalia chebula*	Ahlije-kaboli	Myrobalan/ chebulic myrobalan	whole of plant	Whole of plant use for treatment of nausea.	[32, 33, 59]
Curcurbitaceae	*Cucurbita maxima, C.pepo*	Gharae	Winter quash	Fruit	It can prevent vomiting	[32, 33, 60]
Cycadaceae	*Cycas revoluta*	Jemar	Sago palm	Fruit	It can remove vomiting	[32, 33, 61]
Cyperaceae	*Cyperus longus*	Saed	Sedge/ Galingale	Roots and bark	2.5-10 g of syrup to cut vomiting. If chafed it, then put it a ceramic on the fire until dried, so eat some of it every morning, it in combination of *Pistacia atlantica* oil can cut vomiting. Poultice or drinkable of it cut vomiting.	[32, 33, 62]
Elaeagnaceae	*Elaeagnus angustifolia*	Ghabira	Oleaster/ Russian olive	Fruit	It can calm and lock vomiting. It is also effective in nausea.	[32, 33, 63]
Fagaceae	*Quercus ilex*	Ballot	Holm oak	fruit	It use for treatment of nausea.	[32, 33, 64]

Fumariaceae	*Fumaria parviflora*	Shahtaraj	Fumitory	Aerial parts	Fumitory with vinegar to treatment of emesis. 7.5-12.5 g of it/ 150-300 g of juice in combination of yellow myrobalan water that cooked with sugar, and in cooked 12.5-25 g of it/12.5 g of seed can be effective in emesis. If it mixed with vinegar, can calm emesis.	[32, 33, 65]
Hypericaceae	*Hypericum perforatum*	Naksir	St john's wort	Flower	It removes vomiting.	[32, 33, 66]
Labiatae (Lamiaceae)	*Thymus serpyllum*	Sisanber-nemam	Wild thyme	Seed, Aerial part	Drinking seed with wine can prevent emesis. Drinking it with vinegar use for treatment of bloody vomiting. 5 g of syrup can use for treatment of vomiting.	[32, 33, 67]
	Mentha aquatica	Fodanj	Pennyroyal	Aerial parts	Up to 5 g of syrup use for remove of emesis. If it used with vinegar, can calm nausea and vomiting. Its combination with syrup of pomegranate use for remove of emesis.	[32, 33, 68]
	Mentha piperita	Na'na	Mint	Leaf and peduncle	Drinking 2-3 peduncles with sour pomegranate juice for treatment of emesis. It is effective in the vomiting.	[32, 33, 69]
	Ocimum basilicum	Franjmeshk	Common calamint	Aerial parts	It can prevent nausea.	[32, 33, 70]
	Teucrium montanum	Marmahooz	Marram/ marum	Leaf, flower and seed	5 g of leaf, seed and flower syrup and 37.5 g of juice calm and prevent emesis.	[32, 33, 71]
	Satureja hortensis	Satar	Summer savory	Leaves	Eating it is more effective in nausea. Drinking cooked juice of it with purgative spices for treatment of nausea	[32, 33, 72]
Lauraceae	*Sassafras albidum*	Sasaferas	Sassafras	Root bark	It can remove emesis.	[32, 33, 73]
Leguminosae (Fabaceae)	*Acacia arabica*	aghaghia	Locust/acacia	Gum	It is effective in nausea and it also can lock vomiting	[32, 33, 74]
	Alhagi camelorum, A. mauroroum	Taranjebin	Hedysarum	Manna	It use for treatment of nausea.	[32, 33, 75]

	Tamarindus indica	Tamr hendi	Tamarind	Fruit	35- 150 g of syrup can calm nausea. It is effective in vomiting and prevents vomiting with astringent effect. Note: do not macerate tamarind for a long time, because it can cause emetic.	[32, 33, 76]
	Trigonella corniculata	Handeghoghi bostani	Cultivated fenugreek	Fruit	It can effective in nausea	[32, 33, 77]
	Vicia faba	Baghala	Faba bean/Broad bean	Fruit	It removed vomiting	[32, 33, 78]
Lythraceae	*Punica granatum*	Romane hamez	Pomegranate	Flowers and fruit	Juice and wine of fruit can prevent vomiting. Crushed sour pomegranate with currant and cumin can exterminate vomiting. It can cut vomiting.	[32, 33, 79]
Malvaceae	*Adansonia digitata*	Habhabo	Baobab	Fruit	2.5 g of syrup cut emesis	[32, 33, 80]
Meliaceae	*Melia azedarach*	Azad derakht	Bead tree/ Persian lilac/ china berry/Azedarach	Leaf, flower, root	Drinking of extract can prevent nausea. Poultice of leaf on stomach can calm nausea.	[32, 33, 81]
Moraceae	*Morus alba, M. nigra*	Toot hamez	Mulberry	Fruit	It can lock vomiting.	[32, 33, 82]
Moringaceae	*Moringa arabica/ M. pterygosperma*	Habo roman	Horseradish Tree	Seed	Oil of seeds with Mastic use for vomiting. 5 g of syrup of it can be effective in emesis.	[32, 33, 83]
Myristicaceae	*Myristica fragrans*	Jozeboa	Mace	Fruit	Up to 10 g of syrup prevent/remove emesis. Note: great use of it can cause immorality	[32, 33, 84]
Myrtaceae	*Eugenia caryophyllata*	Gharanfol	Clove	Flower	Up to 5 g of syrup can be effective in remove/ calm of emesis. It is more effective in emesis.	[32, 33, 85]
	Myrtus Communis	Ase	Common Myrtle	Seed	Juice of seed can calm vomiting. Drinking of seeds syrup and its extract is effective in prevent vomiting.	[32, 33, 86]
Oxalidaceae	*Oxalis acetosella*	Hemaz	Clover	Flower, Leaf	45 g of syrup calming, curing and remove emesis. Note: the kind of it that grows near water is effective in nausea.	[32, 33, 87]

Papilionaceae	*Lupinus termis, L. angustifolia*	Tarmas	Lupine	Seed, Leaves	It can calm nausea and prevent vomiting.	[32, 33, 88]
Phyllanthaceae	*Phyllanthus emblica*	Amlaj/ Shiramlaj	Emblic	Fruit	7.5-12.5 g of plant and 25 g of it cooked can prevent vomiting. Macerate Emblic in milk can prevent vomiting. It can calm vomiting and cut it.	[32, 33, 89]
Piperaceae	*Piper longum*	Pipal/ darolfelfel	Pepper	Leaf	Burn the dried leaf (7 pieces) that felt of tree, transfer it rapidly to cold water; then drink the water, this can prevent emesis 5 g of syrup remove vomiting. Its water macerate extract can prevent emesis.	[32, 33, 90]
Poaceae (Gramineae)	*Agropyron repens*	Dop/ Bidgiahe	Couch grass	Leaf and peduncle	Drinking of leaf extract and thin peduncle that washed with white rice and chafe with each other in combination of crystallised sugar, can remove vomiting.	[32, 33, 91]
	Andropogon schoenanthus	Azkhar	Lemon grass	Root, Flower bloom	5g of it alone or combination with pepper use for treatment and calming of nausea. It use for calming vomiting.	[32, 33, 92]
	Cynodon dactylon	Sile/ Margh/ Bidgiahe	Bermuda grass	Seed and root	Its seed extract cut vomiting.	[32, 33, 93]
	Hordeum vulgare	Shaeer	Barley	Seed	Flour of the barley with juice of pomegranate use for treatment of vomiting. Give time (one night) to dough of the barley to turn acid then eat 37.5-45.0 g of it can use for treatment of vomiting. Flour of it is effective in treatment of vomiting	[32, 33, 94]
	Panicum miliaceum	Dakhan/ Arzan	Broomcorn/hog millet red/broom tail/ millet	Seed	Flour of it can cut vomiting.	[32, 33, 95]
	Saccharum spontaneum	Tabashir	Tabasheer	Stem	5 g of syrup cut vomiting	[32, 33, 96]
	Oryza sativa	Orz / brenj	Rice	seed	It combination with fresh yogurt diluted with water and sumac can calm nausea. 75 g of grilled rice that macerate in water (200-250 g) at night then drink the filtrate of it, this can remove nausea.	[32, 33, 97]

Polygonaceae	*Polygonum bistorta*	Anjbar	Bistort	Leaf/whole of plant	5 g of distillates (syrup)/ 2.5 g of extract / 12.5 g of leaf is effective in treatment of emesis. 5 g of half-bruised of it that boiling with sugar can cut vomiting. It can calm vomiting.	[32, 33, 98]
	Polygonum aviculare	Asioraei	Knotgrass	Aerial part	350 g of syrup lock /cut vomiting.	[32, 33, 99]
	Rheum ribes	Ribas	Syrian Rhubarb	Whole plant	Up to75 g of syrup remove/lock vomiting. It can calm nausea). Note: Inspissated juice is much stronger than juice of it.	[32, 33, 100]
Portulacaceae	*Portulaca oleracea*	Baghlat ol hamgha	Portulaca	Leaf, seeds and peduncle	It can calm and prevent vomiting.	[32, 33, 94]
Ranunculaceae	*Nigella sativa*	Shoniz	Negella seeds/ ergot of rye	seed	It use for treatment of nausea.	[32, 33, 101]
	Thalictrum foliolosum	Piaranga	Meadow-rue	Root, Aerial part	1/3 of it with 2/3 of black pepper that bruised with each other, then tablet it of the required size of pea and use one of it in the morning and the other at night	[32, 33, 102]
Rhamnaceae	*Zizyphus sativa*	Onabe	Jujube	Leaf	Chew the leave can use for treatment of emesis.	[32, 33, 94]
Rosaceae	*Amygdalus communis var. amara*	Lozolmare/ Lose bari and lose jabali	Almond	Flower and fruit	Up to 7.5 g of syrup and up to 5 g of flower remove vomiting. 10 g of flower syrup and15 g of fruit syrup can remove vomiting	[32, 33, 94]
	Crataegus azarolus	Zaeror	Hawthorn	Fruit	62.5 g of juice and 30 g of fruit calm and lock vomiting.	[32, 33, 103]
	Cerasus vulgaris	Gharasia (Albalo)	Cherry	Fruit	It can cut emesis and remove vomiting.	[32, 33, 104]
	cydonia vulgaris	Safar jal	Quince	Fruit	Inspissated juice (up to 20 g) of sour fruit remove and cut vomiting. Smell of it can prevent emesis With leaf of spearmint use for prevention of emesis. Use up to75 g of juice of it cut vomiting. It and its extract prevent vomiting. Also it can prevent nausea.	[32, 33, 105]

	Malus domestica	Toffah	Apple	Fruit	35 g of Inspissated juice of fruit without sweeting can prevalence nausea. Dried/flour fruit with pomegranate juice and other appropriate spices can reduce vomiting. Flour of apple prevented emesis. Chew it with honey calm vomiting. It also can prevent nausea. Sour of apple can calm vomiting.	[32, 33, 106]
	Pyrus communis	Kamsari	Pear	Whole of plant	Inspissated juice locks vomiting. It can prevent emesis. It can lock vomiting.	[32, 33, 107]
	Prunus cerasifera	Ejas/ Adrak/ Shamloj	Damson	Fruit	225 g of syrup is effective/calm and prevent vomiting. The sour of it can be effective in nausea. 5 g of it in combination with 5 g pepper can remove nausea. Green damson can cut vomiting.	[32, 33, 108]
	Rosa canina	Nasrin	Jonquil	Petal	It use for treatment of vomiting.	[32, 33, 109]
Rutaceae	*citrus aurantium var.amara*	Naranj	Sour orange	Fruit	Drinking 3.75 g of dried fruit with warm water use for treatment of emesis. Sour of it can calm vomiting.	[32, 33, 110]
	Citrus limonum var.dulicis	Lemon	Lemon	Fruit	Sour of lemon use for treatment of vomiting.	[32, 33, 111]
	Citrus medica var. cedrata	Otroj	Citron	Fruit and peel	12.5 g of dried /25 g of jam can reduce vomiting. Peel that cooked can be effective in vomiting, and the yellow peel can cure nausea. Sour water of it can calm and reduce vomiting. Inspissated juice of citron is much effective than Inspissated juice of unripe grapes in cutting vomiting.	[32, 33, 112]
	Citrus sinensis	Konle	Orange	Peel, seed and Fruit	Its syrup is very useful in nausea and vomiting	[32, 33, 113]
	Aegle marmelos	Bal	Golden/ stone/ wood apple, Bengal quince	Seed/ fruit	It is effective and prevent vomiting	[32, 33, 114]
Sapindaceae	*Sapindus trifoliatus*	Ratte	Soapnut	Fruit	It can useful in nausea	[32, 33, 115]
Solanaceae	*Solanum melongena*	Badamjan	Egg-plant	Fruit	Eating grill fruit can remove vomiting in person who had nausea after eating food.	[32, 33, 116]

Thymelaeaceae	*Agallochum malaccense*	Ood	Aloes-wood/ Lute	Stem	It's burned and combination with milk can calm vomiting. It also can prevent nausea	[32, 33, 117]
Valerianaceae	*Valeriana dioscorides*	Sonbol kohi	valerian	Rhizome	Up to 5 g of syrup lock/prevent vomiting. With cold water use for treatment/prevent of nausea.	[32, 33, 118]
	Valeriana jatamansi	Sonbol tibe	Valerian	Roots	Up to 5 g of syrup lock vomiting.	[32, 33, 119]
Vitaceae	*Vitis vinifera*	Feghaho kerm/ kerm	Grapevine	Fruit	-it cut vomiting and bloody vomiting. -syrup of it that Inspissated with sugar can calm nausea -drinking its syrup can prevent nausea and lock vomiting. Note: it's juice is more effective that it	[32, 33, 120]
Zingiberaceae	*Zingiber zerumbet*	Zaranbad	Coriande	root	5 g of syrup lock emesis. Keeping it in mouth can cut vomiting.	[32, 33, 121]
	Elettaria cardamomum	Ghaghale/ Abale	Cardamom	seed	2.5-5 g of syrup can lock vomiting. It can be calming, remove and effective in nausea. (it also can prevent vomiting) If drink its extract with it' bark in combination of vinegar can calm emesis. Use it with mastic juice and pomegranate juice for treatment of emesis. Boiling half-bruised with peel in water or rose-water use for treatment of emesis. It is more effective in treatment of emesis especially while eat with peel.	[32, 33, 122]

V. Herbal Remedies have been used in the Literature for the Treatment of Nausea and Vomiting

a) Lemon (Citrus Lemon)

Rutaceae are a great family that has about 1800 species in 160 genera. Essential oil of C. lemon that was extracted with hydro-distillation includes volatile (%85-99) and non-volatile (%1-15). Chemical constituents that identified in C. lemon essential oils are: Limonene (it is the major compound in citrus peels), limonene oxide, α-terpineol, carvone, carveol, eugenol, spathulenol, caryophyllene oxide, α-terpineol, 3-cyclohexane-1-methanol. A study was conducted to evaluate the effect of aromatherapy essential oils in the control of nausea and vomiting associated with pregnancy. The study was conducted on 100 pregnant women showed that inhaling lemon can be effective in reducing nausea and vomiting in pregnancy.

A study on 180 people in three groups: control group, treated with intramuscular inject of metoclopramide and was treated with lemon peel; results showed that the group who were treated with lemon peel their symptoms were better control.

In a study of 50 women who had undergone caesarean section and vaginal deliveries has been shown that nausea and vomiting in group that used Lemon peel is significantly lower than the control group.

In addition, nasal spray formulation of lemon essential oil (that extracted from peel of Citrus sinensis) has been showed significant effects on the control of nausea and vomiting [123-126].

b) Berberis (Berberis Vulgaris)

Barberry has about 500 species around the world. Berberine and berbamine are the main constituents that found in different species of Barberry. There are several pharmacological and biological effect for *B. vulgaris* such as: antihistaminic and anticholinergic. These two effects can be helping the improvement of nausea and vomiting [127, 128].

c) Apple (Malus Domestica)

There are about 100 varieties of apples commercially. Apples contain flavonoids, fibre, pectin, high potassium, low sodium, zero of fat. In a study on 19 patients treated by cisplatin showed that eating three times a day from a diet that includes: vanilla ice cream, cheese and apple sauce can be effective to control nausea and vomiting in this category of people [129, 130].

d) Peppermint (Mentha Piperita)

The result of GC–MS analysis of essential oils from hydro-distillation extract of *Menthe piperita* showed that there are many compounds in the essential oil, such as: camphene, sabinene, β-pinene, α-terpinene, limonene, terpinolene, p- cymene, menthone, menthol, γ-terpineole, trans-carveol, carvone, pipertitone oxide, and β-caryophllene. Peppermint oil can be effective in controlling nausea and vomiting that caused by chemotherapy. In a study in patients with gynecologic surgery, was shown that peppermint is very effective in reducing nausea and vomiting after surgery.

In another study in 123 patients who is undergoing cardiac surgery, shown that the use of nasal inhaler of peppermint oil can be useful in controlling nausea and vomiting after cardiac surgery [131-133].

e) Valerian (Valeriana Jatamansi)

Valerian is scattered around worldwide with about 250 species. Valerian contains more than 150 chemical compounds such as; pyridine alkaloids, organic acids and terpenes, in particular valepotriates and esterifies iridoid-monoterpenes, but the main three chemicals that are active are the essential oils, valerenic acid and valenol, valepotriates, and a few alkaloids.

A study about antiemetic effects of *V. officinalis* in chickens has been studied against nausea and vomiting that induced by copper sulphate. The results indicate that valerian has significant effect on the control of nausea and vomiting [134-136].

f) Ginger (Zingiber Officinale)

Ginger liquid and capsules preparations are a herbal medications used to control nausea and vomiting due to chemotherapy, postoperative and pregnancy. Ginger extract because of gingerols and shogaol, effects on stimulate gastric contractions. These effects mainly occur by involving serotonergic 5-HT and 5-HT receptors and cholinergic M receptors [122, 137, 138].

VI. Conclusion

Since nausea and vomiting affect the quality of life and in many patients despite the use of antiemetic agent. We also seen these symptoms, so need for further investigation of the discovery of new drugs is felt, therefore, use the traditional medicine can help us do towards to this goal.

Conflict of Interest Statement

We declare that we have no conflict of interest.

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