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Plants and Animals Used for Fertility Regulation in Korea

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受胎調節에 使用되어온 動植物性 生藥

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Plants and animals with fertility regulation activities which have been used in Korea are surveyed. This survey covers most of the natural resources with contraceptive, abortifacient and emmenagogue activities. It includes 110 plants and 17 animals. Twenty plants and animals with reputed antifertility potential are selected and tabulated.

There has been need for safe, effective and inexpensive antifertility agents since most of the agents in clinical use which affect human fertility are not free from undesirable side effects. Literature survey of the oriental medicinal books and folkloric remedies in Korea revealed that numerous plant or animal preparations have been used for the purpose of fertility control. Since these descriptions are based upon the experience of human trial for hundred years, it is desirable to give a systematic effort on identifying such natural product preparations.

Farnsworth *et al.*[1] have reviewed the antifertility plants with folkloric reputation in India, Europe, North and South America etc. However, antifertility plants which have been used in Far Eastern countries have not been included in spite of the wide variety of use of crude plants or animal preparations in the form of oriental medicines or folkloric remedies in these countries.

The present paper, stimulated by Farnsworth's review, lists 110 plants and 17 animals in Table I and II. These plants and animals should cover most of the natural products with reputed antifertility effects in Korea. Although most of the natural preparations could be classified as contraceptives, abortifacients or emmenagogues (menstruation inducer), some plants are described to induce labor and others for the mixed purposes. As shown in Table I, it is interesting that more than half of the plants consulted, *i.e.* 65 out of 110 plants, have been used for induction of menstruation. Among those 65 plants, 21 plants are described to be used for mixed purposes as for abortion or contraception etc. Fourty-two plants are mentioned for abortion, of which 26 plants for mixed purposes, while 19 and 6 plants are mentioned for temporary and permanent contraception, respectively. Another 12 plants are described to be used for the purpose of induction of labor or for easy delivery.

In Table II, again more than half of the animal preparations are described to be used for induction of menstruation, *i.e.* 9 out of 17 preparations. Seven preparations are described

Table I. Plants Used for Fertility Regulation in Korea

Family Name	Plant Name	Korean Name	Purpose of use	Part in Use	Use in Other Countries[1,2,3,4,5]	Reference
Amarantaceae	*Achyranches japonica*	쇠무릎(牛膝)	A	rt	b(India)	6, 8, 9, 10
Amarantaceae	*Amaranthus ascendens*	비름(莧菜)	A	h	b(India)	6, 7, 9, 10
Amarantaceae	*Celosia cristata*	맨드라미(鷄冠花)	C			11
Amaryllidaceae	*Narcissus tazetta var. chinensis*	수선(水仙)	C			11
Araceae	*Arisaema* sp.	천남성(天南星)	A	rh	b(Canada, U.S.A)	6, 8, 9, 10
Aristolochiaceae	*Asarum maculatum*	개족도리(杜衡)	IM	rt		9, 10
Auriculariaceae	*Auricularia polytricha*	털목이(木耳)	C			6, 8, 11
Balsaminaceae	*Impatiens balsamina*	봉선화(鳳仙花)	C, IM	h	c	7, 9, 11
Bignoniaceae	*Campsis grandiflora*	능소화(凌霄花)	IM	f		8
Borraginaceae	*Lithospermum erythrorhizom*	지치(紫根)	C(p)	rh	a(U.S.A), b(India)	8, 9, 10
Campanulaceae	*Adenophora remotiflora*	모시대(齋苞)	A			7
Caryophyllaceae	*Dianthus sinensis*	패랭이꽃(瞿麥)	A, IM	h, s	d	6, 7, 8, 9, 10
Caryophyllaceae	*Melandium firmum*	장구채(王不留行)	IM	h		8, 9, 10
Celastraceae	*Euonymus alatus*	화살나무	A		b(India)	6, 9
Compositae	*Artemisia asiatica*	쑥(艾葉)	IM		b(India)	7
Compositae	*Artemisia keiskeana*	맑은대쑥	IM	s		6, 9
Compositae	*Atractylodes japonica*	삽주(蒼朮)	IM	rh		9
Compositae	*Carthamus tinctorius*	잇꽃(紅花)	A, C, IM	f	a(India), d	6, 7, 8, 9, 10, 11, 14
Compositae	*Chrysanthemum indicum*	감국(甘菊)	IM	f	a(India)	7, 9
Compositae	*Chrysanthemum sibiricum*	구절초(九折草)	IM		b(India)	7
Compositae	*Echinops setifer*	절구대(漏蘆)	IM		b(India)	7, 9, 13
Compositae	*Helianthus annus*	해바라기	IM			7
Convolvulaceae	*Pharbitis* Nil	나팔꽃(牽牛子)	A	s		6, 8, 10, 14
Cornaceae	*Macrocarpium officinale*	산수유나무(山茱萸)	IM			10
Cruciferae	*Brassica campetris var. nippo-oleifera*	유채(蠹台子)	C	s	b(India)	6, 8, 9, 11
Cruciferae	*Brassica juncea*	갓(芥子)	C(p)	s	b(India)	7, 11
Cucurbitaceae	*Cucurbita moschata var. toonas*	호박	A, IM	v		7
Cacuribitaceae	*Trichosanthes cucumeroides*	하늘타리(括樓根)	A, C	rt	a(India)	6, 7, 9
Cucurbitaceae	*Trichosanthes* Kirilowii *var. japonica*	노랑하늘타리	C	rt	b(India)	7
Cyperaceae	*Cyperus rotundus*	향부자(香附子)	A, IM	rh	a(India), d	6, 7, 8, 10, 14

Family Name	Plant Name	Korean Name	Purpose of Use	Part in Use	Use in Other Countries[1,2,3,4,5]	Reference
Cyperaceae	*Scirpus maritinus*	매자기(荊三陵)	IM	rh		8,9
Ebenaceae	*Diospyros kaki*	감나무(柿蒂)	C			8
Eucommiaceae	*Eucommia ulmoides*	두충나무(杜仲)	A			8
Euphorbiaceae	*Croton tiglium*	파두(巴豆)	A, IM	s	a(India), d	6,9
Euphorbiaceae	*Euphorbia pekinensis*	대극(大戟)	A, IM	rt	b(India)	6,8,9,10
Euphorbiaceae	*Ricinus communis*	아주까리(蓖麻子)	IL	s	a(India, Algier), d	7,9
Ginkgonaceae	*Ginkgo biloba*	은행나무(銀杏)	IL			7
Gramineae	*Coix Lacryma-Jobi var. mayuen*	율무(薏苡仁)	A	s	c	6,8
Gramineae	*Hordeum sativum*	보리(麥芽)	A, C	sp		6,11
Gramineae	*Imperata cylindrica var. koenigii*	띠(白茅根)	IM	rt		10
Gramineae	*Phyllostachys edulis*	죽순대(竹筍)	IM			7,10
Gramineae	*Zea Mays*	옥수수	A		c	7
Irideae	*Crocus sativus*	사프랑	IM	f		9,14
Labiatae	*Leonurus sibilicus*	익모초(益母草)	IL, IM	h	c	6,7,9,14
Labiatae	*Mentha saccharinensis*	박하(薄荷)	IM	l		10
Labiatae	*Ocimum sanctum*	영능향(零陵香)	C	h	a(India), d	6,9
Labiatae	*Perilla frutescens var. crispa*	자소(紫蘇)	A			7
Labiatae	*Salvia multicorrhiza*	단삼(丹蔘)	A, IM	rt	b(India)	8,9,10
Lardizabalaceae	*Akebia quinata*	으름덩굴(木通)	A, IM			6,7,8,9
Lauraceae	*Cinnamomum cassia*	계피나무(桂皮)	A, C(p), IM	b	a(India), d	6,7,9,11,14
Leguminosae	*Caesalpinia sappan*	소방목(蘇方木)	IM			9,14
Leguminosae	*Gleditschia japonica*	주엽나무(皂莢)	A			6,8,9,10
Leguminosae	*Glycine* Max	콩	IM	s		7
Leguminosae	*Glycyrrhiza glabra*	감초(甘草)	C	rh		11
Leguminosae	*Phaselous radiatus*	녹두	C	d		11
Leguminosae	*Pueraria thunbergiana*	칡(葛根)	A,C(P)	rt, f		7
Leguminosae	*Robinia pseudo-acacia*	아카시아나무	C	f		11
Liliaceae	*Aloe* sp.	아로에(蘆薈)	IM	ex		14
Liliaceae	*Hosta undulata*	옥잠화	A	rh		6,9
Liliaceae	*Smilax china*	청미래(土茯苓)	C			11
Loganiaceae	*Strychnos ignatii*	보두(寶豆)	A, IL		b(India)	7,8

Family Name	Plant Name	Korean Name	Purpose of Use	Part in Use	Use in Other Countries[1,2,3,4,5]	Reference
Loranthaceae	*Viscum coloratum*	겨우사리(桑寄生)	IM			7
Lythraceae	*Lagerstoemia indica*	배롱나무	IM			7
Malvaceae	*Althaea rosea*	접시꽃	A, IL, IM	h,s		7,9
Malvaceae	*Malva verticillata*	아욱(冬葵子)	A, IL			6,9
Moraceae	*Cannabis sativa*	삼(大麻)	A, IL, IM	rt, s		6,7,8,9,10
Musaceae	*Musa basjoo*	파초	IM			7
Oleaceae	*Forsythia koreana*	개나리(連翹)	IM	fr		9,10
Palmae	*Trachycarpus fortwnei*	종려(棕梠子)	C(p)	s		11
Papaveraceae	*Cordatis* sp.	현호색(玄胡索)	A, IM	rh	b(India)	6,8,9,10,14
Pedaliaceae	*Sesamum indiucm*	참깨(胡麻)	IM	s	a(India), d	9,10
Phytolaccaceae	*Phytolacca esculenta*	자리공(商陸)	A	f, rt	a(India)	7,9,10
Plantaginaceae	*Plantago* sp.	질경이(車前子)	A, IL	s	b(Europe)	6,7,8,9
Polygonaceae	*Fagopyrum vulgare*	모밀	C			7
Polygonaceae	*Reynoutria cuspidatum*	호장(虎杖)	IM	rt		7,9,10
Polygonaceae	*Rheum unduratum*	종대황(大黃)	IM	rh		9,14
Polyporaceae	*Poria cocos*	복령(茯苓)	IM			14
Ranunculaceae	*Aconitum japonicum*	초오두(草烏頭)	A	rh	b(India)	6,9
Ranunculaceae	*Clematis mandshurica*	으아리(威靈仙)	A, IM	rt		7,8,9,10
Ranunculaceae	*Paeonia albiflora*	참작약(赤芍藥)	IM	rh	b(Soviet)	7,9,10,14
Ranunculaceae	*Paeonia suffruticosa*	모란(牧丹皮)	A, IM	rb	b(Soviet)	6,7,8,9,14
Ranunculaceae	*Pulsatilla koreana*	할미꽃(白頭翁)	C	rt, f		10,11
Rhamnaceae	*Zizyphus jujuba var. inermis*	대추나무(大棗)	IM	fr		7
Rosaceae	*Crataegus pinnatifida*	산사(山査子)	IM			10
Rosaceae	*Duchesnea chrysantha*	뱀딸기	IM	fr		7,13
Rosaceae	*Prunus persica*	복숭아나무(桃仁)	A, IM	s	a(India, U.S.A)	6,7,8,10,14
Rosaceae	*Rosa multiflora*	찔레꽃(營實)	IM	fr		10
Rosaceae	*Sanquisorba officinalis var. carnea*	오이풀(地楡)	IM		a(Europe), d	7
Rubiaceae	*Gardenia jasminoides*	치자나무(梔子)	C	f		11
Rubiaceae	*Rubia akane*	꼭두선이(茜草)	A, IM	rh	b(India)	6,9,10,13
Rutaceae	*Zanthoxyulm pipericum*	초피나무(山椒)	IM			10
Scrophulariaceae	*Rehmannia gluticosa*	지황(生地黃)	A			8

Family Name	Plant Name	Korean Name	Purpose of Use	Part in Use	Use in Other Countries[1,2,3,4,5]	Reference
Solanaceae	*Physalis francheti*	파리(酸漿)	A, IL, IM	h, rt		6, 7, 9, 10
Solanaceae	*Solanum melongena*	가지(茄子)	C	f		11
Solanaceae	*Solanum nigrum*	까마중(龍葵)	A		d	7
Taxaceae	*Taxus cuspidata*	주목(朱木)	IM	l	b(India)	7, 9, 10, 13
Thymelaeaceae	*Aquillaria agallocha*	심향(沈香)	IM			14
Ulmace	*Ulmas japonica*	느릅나무(楡皮)	A, IL	b		6
Ulmaceae	*Celtis sinensis*	팽나무	IM			13
Umbelliferae	*Angelica dahurica*	구릿대(白芷)	IL, IM	rt		9, 10
Umbelliferae	*Angelica gigas*	참당귀(土當歸)	IM	rt		7, 9, 14
Umbelliferae	*Cnidium officinale*	천궁(川芎)	A, IM	rh		7, 9, 14
Urticaceae	*Boehmeria frutescens*	모시풀	A, IL			7, 9, 13
Usneceae	*Usnea diffracta*	송낙(松蘿)	IM		b(New Ireland)	7
Valerianaceae	*Valeriana officicinalis var. latifolia*	쥐오줌풀(纈草)	IM			14
Valerianaceae	*Patrinia scabiosaefolia*	마타리(敗醬根)	IM			10
Verbenaceae	*Verbena officinalis*	마편초(馬鞭草)	IM	h	a(India)	9, 10
Verbenaceae	*Vitex cannabifolia*	목형(牧荊子)	IM	rt	b(Europe, India)	9, 10
Zingiberaceae	*Curcuma longa*	강황(薑黃)	IM	rh	b(India)	8, 9
Zingiberaceae	*Curcuma zedoaria*	아출(莪蒁)	IM	rh	a(India)	6, 9

A:abortion, C: contraception: C(p) permanent contraception, IL: induction of labor, IM: induction of menstruation, br: bark, ex: extract, f: flower, fr: fruit, h: herb, l: leaf, rb: root bark, rh: rhizome, rt: root, s: seed, v: vine, a: same species used in the other country, b: other plant in the same genus used in the other country, c: reported to have estrogenic activity, d: plants reported to show antifertility activities in laboratory animals.

Table II. Animals Used for Fertility Regulation in Korea

Family Name	Animal Name	Korean Name	Purpose of Use	Part in Use	Reference
Acridiidae	*Oxya velox*	메뚜기	IL	w	7
Cervidae	*Cervus* sp.	사슴(鹿)	IL	h	9, 10
Cervidae	*Moschus moschiferus sacchalinesis*	사향노루(麝香)	A, IL	m	6, 8, 9
Chelonidae	*Chelonia japonica*	바다거북(龜甲)	IL	c	10
Cicindelidae	*Cicindela chinensis*	반묘(斑猫)	IM	w	6, 7, 10
Cicodidae	*Oncotympana coreana*	매미	IL	c	7
Crustacea	*Percellio* sp.	쥐며느리(鼠婦)	IM	w	6, 9
Diptera	*Tabanus* sp.	맹충(虻蟲)	A, IM	w	6, 9, 14
Falsonidae	*Buteo burmanicus*	말똥가리(蜣螂)	IM	w	6
Grapsidae	*Eriocheir* sp.	게(蟹)	A	c	6, 9
Hirudinea	*Hirudo nipponia*	거머리(水蛭)	A, IM	w	6, 7, 8, 9, 14
Lacertilia	*Phrynocephalus frintatis*	합개(蛤蚧)	IM	w	8, 9
Lepismadae	*Lepisma villosa*	좀(衣魚)	A, IM	w	6, 8, 9
Lepitoptera	*Bombyx mori*	누에(蠶子)	C(p), IL	e	6, 7, 8, 9, 10
Ranidae	*Rana nigromaculata*	올챙이	C	w	6
Scropendridae	*Scropendra rubiginosus*	지네(蜈蚣)	A, IM	w	6, 8, 10
Trionychidae	*Amyda maackii*	자라(鼈甲)	A, IL, IM	w	6, 8, 9, 10

A: abortion, C: contraception, C(p): permanent contraception, IL: induction of labor, IM: induction of menstruation, c:cortex, e: egg, h: horn, m: musk, w: whole animal.

Table III. Frequency in Use of Plants and Animals with Fertility Regulation Activities.

Plant or Animal Name	Korean Name	Number of References	Remark*
Carthamus tinctorius	잇꽃(紅花)	7	+
Dianthus sinensis	패랭이꽃(瞿麥)	5	+
Cyperus rotundus	향부자(香附子)	5	+
Cinnamomum cassia	계피나무(桂皮)	5	+
Cannabis sativa	삼(大麻)	5	
Corydalis sp.	현호색(玄胡索)	5	+
Paeonia suffruticosa	모란(牧丹皮)	5	+
Prunus persica	복숭아씨(桃仁)	5	+
Hirudo nipponia	거머리(水蛭)	5	
Bombyx mori	누에(蠶子)	5	
Achyranthes japonica	쇠무릅(牛膝)	4	+
Amaranthus ascendens	비름(莧菜)	4	+
Arisaema sp.	천남성(天南星)	4	+
Brassica campetris var. nippo-oleifera	유채(薹台子)	4	+
Euphorbia pekinensis	대극(大戟)	4	+
Leonurus sibilicus	익모초(益母草)	4	+
Plansago sp.	질경이(車前子)	4	+
Paeonia albiflora	참작약(赤芍藥)	4	+
Rubia akane	꼭두선이(茜草)	4	+
Taxus cuspidata	주목(朱木)	4	+

* Plants in the same genus used in the other countries or reported to have antifertility activities in laboratory animals are checked.

for abortion, another 7 for induction of labor and only 2 preparations for contraception. The use of the identical plant or the plants from same genus in the other countries than Korea, Japan or China is also indicated for the purpose of comparison. It is very interesting that more than one-third of the plant species has also been reported to be used in the other countries for the antifertility purposes. It is noted that reference from Japan was included in this investigation being involved in oriental medicine and is anticipated that the uses nearly coincide with Korea. Table III shows 20 plants and animals with reputed antifertility potential. It includes 10 plants and animals which have been mentioned for the presently interested purposes on more than five literatures out of nine references consulted. It also includes 10 plants mentioned in four references but with other antifertility potentials.

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