

Innovation for Better Quality of Life

EstroG-100® Novel Proprietary Herbal Formula for Women's Heath



Herbal Hormone Research Institute





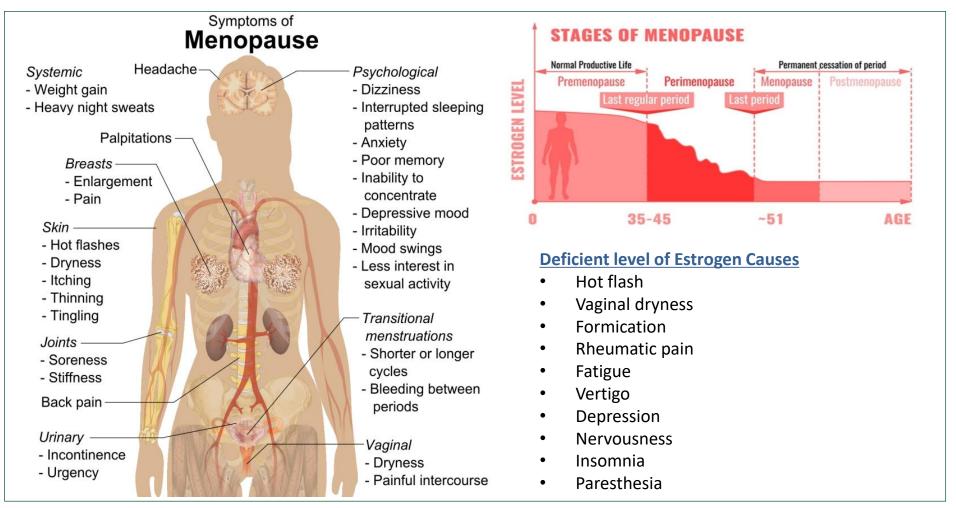




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- 03. EstroG-100 Clinical study
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01. About Menopause

- Menopause occurs when the levels of reproductive hormones (estrogen & progesterone) decline & ovaries stop producing eggs.
- ✓ Menopause is a natural process that all women go through.





02. What is EstroG-100

- **EstroG-100** is patented natural botanical blend, made from natural ingredients, there are *Cynanchum wilfordii, Phlomis umbrosa,* and *Angelica gigas* Nakai, which has been used for more than 400 years as a traditional medicine in Korea.
- **EstroG-100** is suitable for the market demand and has been a great spotlight as a safe and effective product for improving women's quality of life.
- **EstroG-100** has been confirmed:
 - ✓ to improve 10 menopausal symptoms without any adverse effects through 3 clinical studies (no increase in body weight and serum hormone levels).
 - ✓ to improve some of the symptoms, such as hot flash, bone mineral density, sleep disorders, anxiety and fatigue from animal studies.
 - ✓ to be safe by single oral dose, repeated oral dose, and genetic toxicity studies and by estrogen receptor binding study, which makes it distinguishable from other products binding to the estrogen receptors and causing adverse effects.



	C. Wilfordii	P. Umbrosa	A. Gigas		
Scientific Name	Cynanchum wilfordii Hemsley	Phlomis umbrosa Turczaninow	Angelica gigas Nakai		
Family Name	Asclepiadaceae	Labiatae	Umbelliferae		
Common Name	白首乌 <i>,</i> Baishouwu 隔山牛皮消 <i>,</i> Ge Shan Niu Pi Xiao	糙苏, Cao Su 续断, Xu Duan	当归, Dong Quai		
Range	East Asia	East Asia-northern China, Korea	East Asia		
Official compendium	Korean Food Code, KHP	Korean Food Code, KHP	KP, CP, JP, EP		
Photo					
History	 Recorded in Dong-Eui-Bo-Gam (Heo, 1610). Used for more than 390 years in Northern China and Korea. Applications for women's disordered symptoms related to pregnancy and birth, preventing the aging of the body, and especially strengthening the bones and muscles. Toxicologically safe. 	 Recorded in Dong Eui Bo Gam (Heo, 1610). Used more than 390 years in Northern China and Korea. Applications for pains, skin damage, and putting together of muscles and bones as its name stands for (in Korean the name Sok dan means "connecting of the cut"). 	 Recorded in Dong-Eui-Bo-Gam(Heo, 1610). Used more than 390 years in Korea at least. Applications for women, has effects on menstrual irregularities and menstrual pain, and is known to have some effects on forgetfulness, insomnia, mental anxiety, and anti-inflammatory effects. 		

03. Summary of EstroG-100 Clinical Studies

	Clinical Study I	Clinical Study II	Clinical Study III		
Study Location	Seoul, Korea (2003~2004)	CA, USA (2010)	Suwon & Seoul, Korea (2014)		
Test Period	12 weeks (Safety : 52 weeks) 12 weeks		12 weeks		
Test Compound & Dosage	EstroG-100 & 514mg/day				
Study Participants	47 (23/24)	61 (29/32)	96 (48/48)		
	Climacteric Symptoms : improvement by 5 times	KMI improvement	KMI improvement		
Efficacy	Femoral BMD & Serum Osteocalcin improvement and Menopausal symptoms	Improvements on 10 individual Menopausal symptoms	Improvements on 9 individual Menopausal symptoms		
Safety	No serious adverse event No significant statistical difference between baseline and end-time and between the two groups on weight, BMI, serum estrogen and follicular stimulating hormone(FSH)				

Clinical Study 1 : Protocol

Clinical Study I				
Test Method	 Randomized, double-blind, placebo-controlled study Primary endpoint : Interview on the improvement of menopausal symptoms Secondary endpoint : Evaluation of effectiveness (BMD, Serum Osteocalcin, Serum ALP, etc.) 			
Study Location	Samsung Cheil Hospital (in Seoul, Korea)			
Test Period	- Primary endpoint (Climacteric syndrome) : 12 weeks - Secondary endpoint & Safety : 52 weeks (May 2003 – April 2004)			
Dosage	514mg/day as EstroG-100			
Study Participants	23 subjects in placebo group & 19 active group (48 enrolled and 6 drop out)			
Inclusion Criteria	Age of 46 ~ 66 & Diagnosis of menopausal syndrome (average age=54)			

Ref: J. Korea Society of Menopause, 11(1); 16~26 (2005)



Clinical Study 1 : Result (1)

[Primary Endpoint Evaluation : Change of Climacteric Symptoms after 3 months]

1

		Change of Symp	Total	
		No improvement	Improvement	TOTAL
Placebo	Case	18	5	23
Group	(%)	78.3%	21.7%	100%
Study	Case	10	14	24
Group	(%)	41.7%	58.3%	100%
Total	Case	28	19	47
	(%)	59.6%	40.4%	100.0%

OR=5.04 (95% C,I : 1,4-18,1), Fisher's Exact Test

Improvements with statistical significance on climacteric symptoms by 5 times compared to placebo



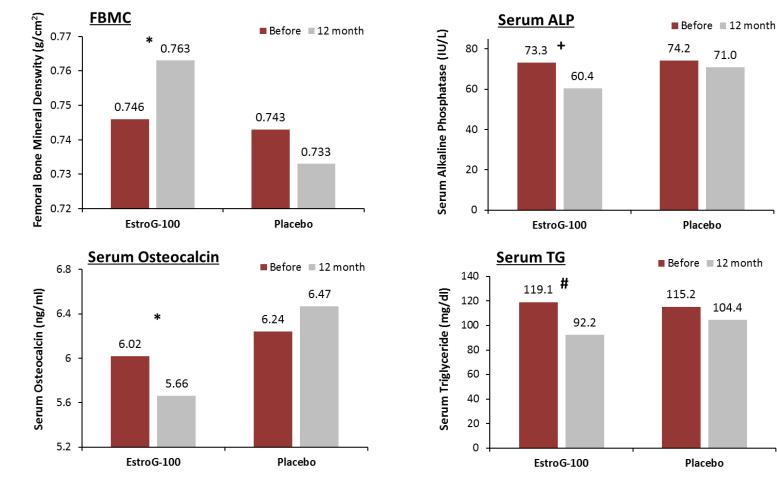
71.0

104.4

Placebo

Clinical Study 1 : Result (2)

[Secondary Endpoint Evaluation]



1

*: p< 0.05, #: p=0.06, +: p=0.08 compared to placebo by Mann-Whitney test





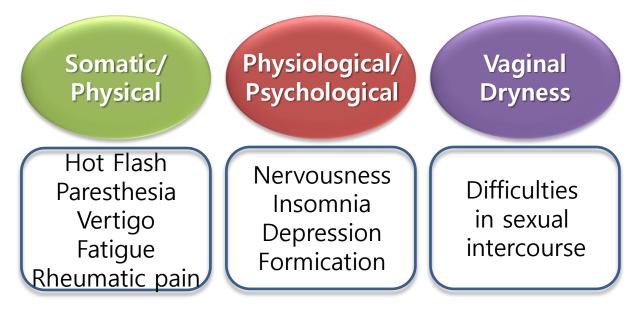
Clinical Study 2 : Protocol

Clinical Study II				
Test Method	 Randomized, double-blind, placebo-controlled study Primary endpoint : Mean change of questionnaire (Kupperman Menopausal Index) Secondary endpoint : Mean change in scores of the 11 individual menopausal symptoms of KMI and Vaginal Dryness 			
Study Location	Friends Medical Group (in California, USA)			
Test Period	12 weeks (May 2009 – January 2010)			
Dosage	514mg/day as EstroG-100			
Study Participants	32 subjects in placebo group & 29 active group (64 enrolled and 3 drop out)			
Inclusion Criteria Age of 42 ~ 70, Diagnosis of menopausal syndrome (average age = 53)				

Ref: Phytother. Res. 26; 510~516 (2012)

Clinical Study 2 : Result (1)

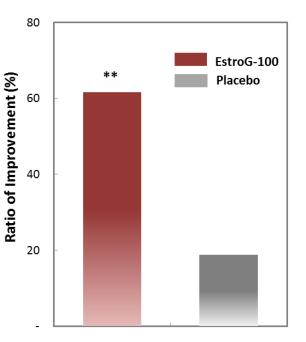
Significant improvements on total KMI & 10 individual Menopausal Symptoms



[Safety Evaluation]

No significant change in <u>Weight</u>, <u>BMI</u>, <u>E2</u> and <u>FSH</u>, etc. in EstroG-100 groups after 12 weeks (p>0.05, t-test)

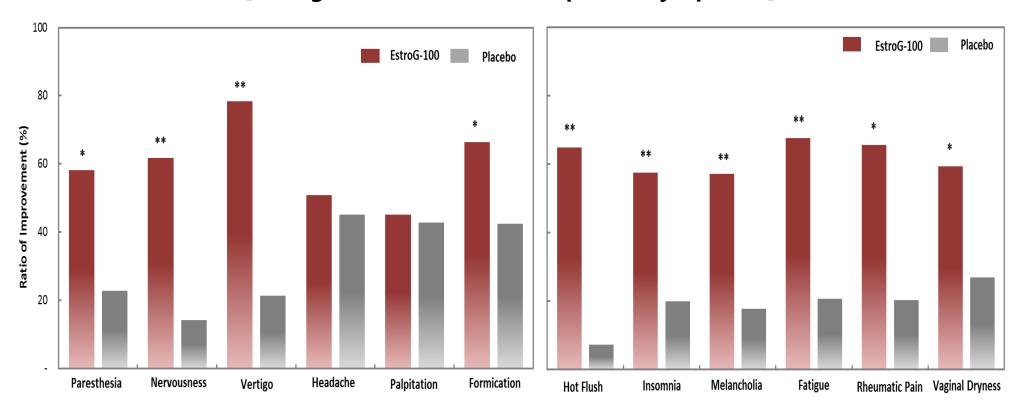
[Mean Change of KMI]



^{**,} p<0.01 compared between groups by t-test



[Change of Individual Menopausal Symptoms]



*, p<0.05; **,p<0.01 compared between groups by t-test

Clinical Study 3 : Protocol

Clinical Study III				
Test Method	 Multicenter, randomized, double-blind, placebo-controlled study Primary endpoint : Mean change of questionnaire (Kupperman Menopausal Index) Secondary endpoint : Mean change in scores of the 11 individual menopausal symptoms of KMI and vaginal dryness 			
Study Location	i. Ajou University Medical Center, ii. Korea University Anam Hospital, iii. Yonsei University College of Medicine Severance Hospital (in Seoul & Suwon, Korea)			
Test period	12 weeks (March – August 2014)			
Dosage	514mg/day as EstroG-100			
Study Participants	96 female participants of age of 40~70 with menopausal symptoms (105 enrolled and 9 drop out)			
Inclusion Criteria	Age of 40 ~ 70 with menopausal syndromes (average age = 54)			

RALENDO TECH

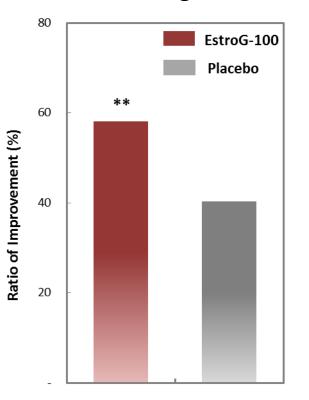
INNOVATION

Clinical Study 3 : Result (1)

Significant Improvements on KMI & 9 individual Menopausal Symptoms

- The result almost duplicated in the 2nd Clinical Study (Non-Asian) by improving as many as 9 different symptoms (Hot flush, paresthesia, nervousness, melancholia, vertigo, fatigue, formication, rheumatic pain & vaginal dryness)
- No significant differences or changes observed in endometrial thickness
- ➢ No change in weight, BMI, and the level of estrogen and FSH
- No adverse events reported during the study

[Mean Change of KMI]

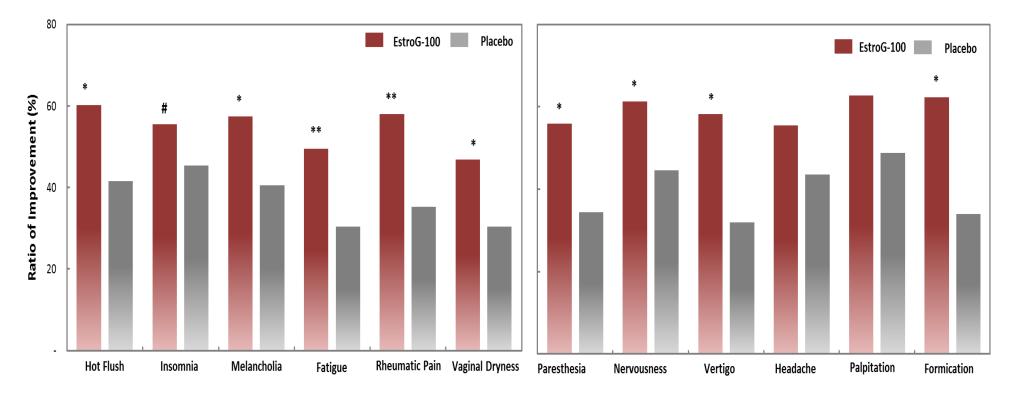


**, p<0.01 compared between groups by t-test





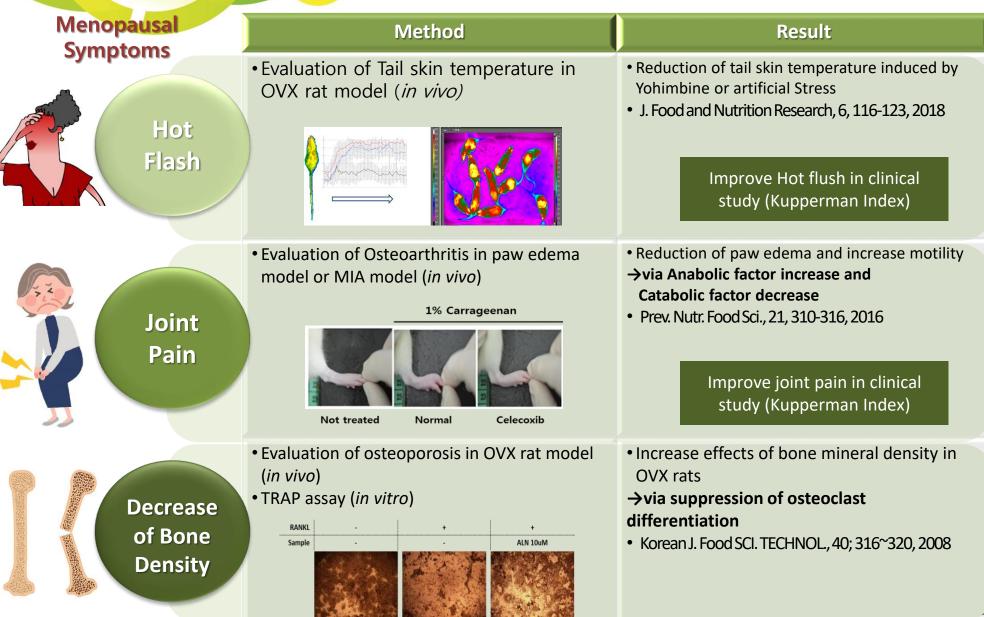
[Change of Individual Menopausal Symptoms]



*, p<0.05; **,p<0.01; #, p=0.084 compared between groups by t-test

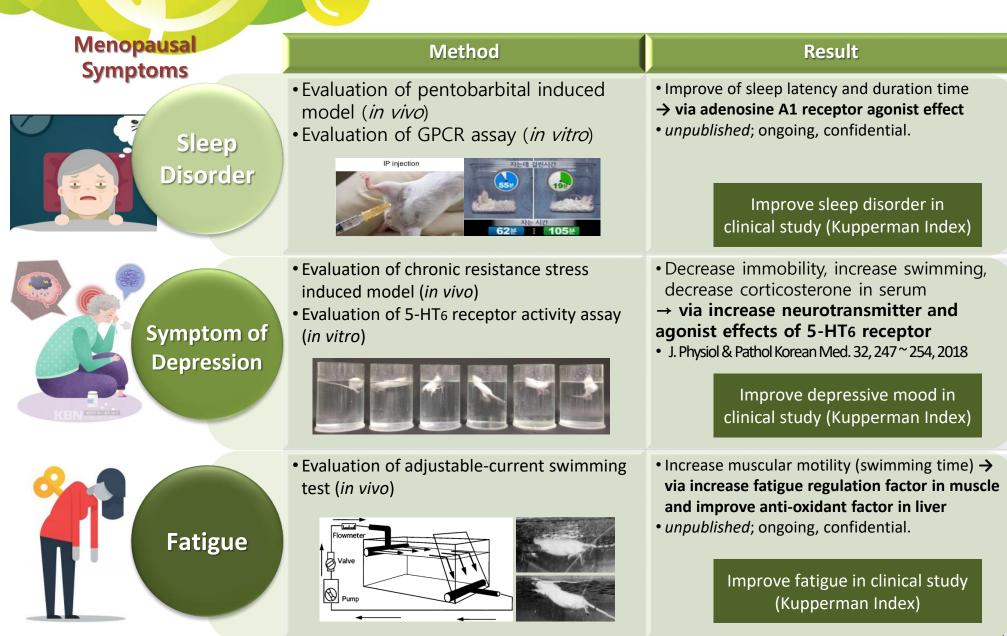
04. Summary of EstroG-100 MOA(1)





04. Summary of EstroG-100 MOA(2)







05. Summary of EstroG-100 Safety Studies

Safety & Other proven features

- Safety from 3 clinical studies
 - ✓ No adverse event at all subjects
 - ✓ No change in serum biochemical and hematological parameters

Acute toxicity study in rat

- ✓ No toxic event at all dose range
- ✓ NOAEL 4,000 mg/kg
- 26 weeks sub-acute toxicity study in rat
 - ✓ No toxic event at all dose range
 - ✓ NOAEL 1,500 mg/kg/day
- Genotoxicity study
 - ✓ No genotoxicity
- Estrogen receptor binding assay
 - ✓ No estrogenic activity

NATURALENDO TECH INNOVATION FOR BETTER QUALITY OF LIFE

Toxicology test

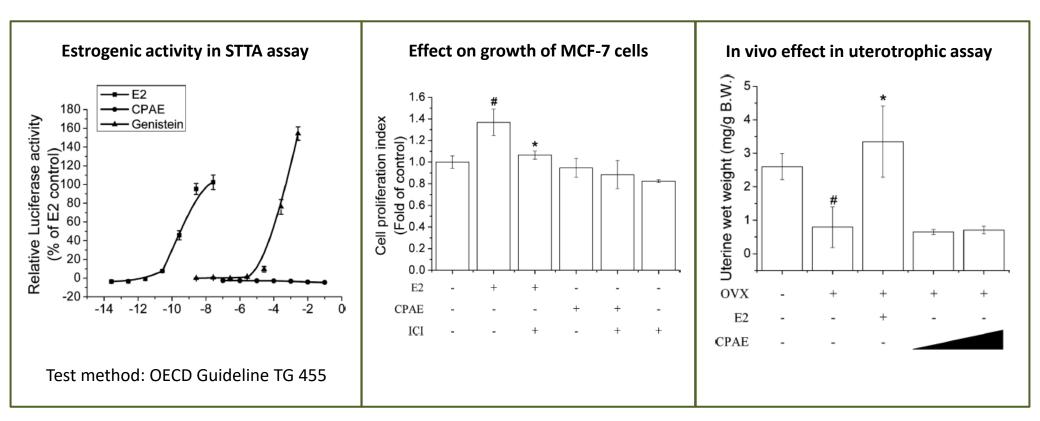
0

Acute toxicity Study in SD rat	26 weeks sub-chr onic toxicity study in SD rat	AMES test	Chromosomal aberration assay	Micronucleus test in mice
 Oral administratio n of EstroG-100 in rat at 4,000mg/kg No toxicity event at 4,000mg/kg 	 Oral administratio n of EstroG-100 i n SD rat at 750, 1 000, 1500 mg/kg No toxicity event at all dose range NOAEL 1500 mg/kg/day 	 Administration of EstroG-100 in Salmonella typhimurium (TA98, TA100, TA1535 and TA1537) and E. coli (WP2uvrA (pKM101)), at 8.19, 20.5, 51.2, 128, 320, 800, and 2000 µg/plate concentration No mutagenicity at all test concentrations 	 Administration of EstroG-100 in Chi nese Hamster Lun g (CHL/IU) cells at 1000, 2500 and 5 000 μg/ml No metabolic acti vation to the chro mosome aberrati ons at all test con centrations 	 Oral administratio n of EstroG-100 i n mice at 30, 100 , 300, 1000, 2000 mg/kg No mortality and clinical signs in any animals No mutagenicity on micronucleus formation and cytotoxicity in bone marrow cells of mice at all concentrations





EstroG-100 can be used as beneficial herbal ingredients for menopausal women



Ref: Toxicol. Res. 33(1), 71~77 (2017)

EstroG-100 COMMERCIAL HIGHLIGHTS_Korea

NATURALENDO TECH

Korea Brand "Estrition"

LOTTE Homeshopping





빛을 쬔 양송이 버섯을 오릇이 갈아넣은 비타민D로 간편하게 뼈 건강 케어!

액상으로또한번 10년의 연구가 담겨있는 타트체리 맛 백수오 앰플로 맛있게 갱년기 케어!

HYUNDAI OLIVE () YOUNG **Pmart**



1일 2포면 충분한 백수오 등 복합추출물 함량

1통에 30포가 들어있으며 1포 개별포장으로 언제 어디서나 간편하게 드실 수 있습니다.









Rexall, Shopper's Drug Mart & Loblaws (Canada)





USA-Now Foods



USA-Life Extension



USA-Doctors Best



WHÖLE FOODS

Canada-Profemin



USA –Meijer



Canada – Swiss Naturals







EU- Menoelle

Canada - Menomend

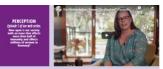
EstroG-100 COMMERCIAL HIGHLIGHTS_EU

QVC

HSE24

Best menopause supplement seller in category in dm

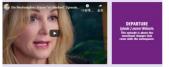






After my gnaecologist advised me about the product menoElle, I am now really excited after 3 months. My hot flashes arvitually non-existent and my resites, steepless, nights are a thing of the past. Overall, I feel more balanced and positive. It is great that there is finally an alternative to the previous plant products with the vegetable hormones, which can only be taken for a short time anyway. After trying a lot over the last few years, I have now found real help with menoElle. Heve already seen II in the pharmacy. I can only recommend anyone who also suffers greatly from the menopause.

**** Moni · 2 months a:





***** Moni · 2 months ago

Only to be recommended

Hello wouldn't have thought in life that these tablets help I have fired so much that you can not imagine because of the hot flashes that were not to bear them. I became aware of these tablets in the internet everywhere stood they help I am then to dim and i got them I took these tablets on 7 days was already an improvement and after 4 weeks everything is gone between it still comes through the hast but very liftle easy I have been taking the tablets of a days now and can only recommend this to the women who are desperted as 1 have 3 have its flashes that helps 5.

**** TADB - a year ago

Finally something that helps to absolutely recommend !!

I was critical and was taught something to the contrary. After only I week I have already noticed slight improvements. In the meantime, I can say with certainly in that Menotelle definitely helps me. If the immer comtrollable, feel like myself again, don't wave as much at night, and especially have no other "sole effects", will definitely continue to take Menoelle and recommend it to my girthriends. In the past I have tried other things, actually mostly without any change, here it is different. TOR, thank you DM.

***** Susi54 · a year ago

after four weeks without complaints

Since many women are looking for herbal products for menopause, I would like to give a very positive feedback on the menoelle product. If II take it now for four weeks and I'm thrilled. I an almost free of complaints and right now, when it is so warm. I no longer suffer from the hot flashes that I had particularly strong. There are now many positive reports on the active substance on the interve. Apparently, there is finally a product that works and that also without hormones and soy estrogens. Since I had cancer, these products are out of the question for me anyway. Thanks to DM for an affordable and over-the-counter product for my menonaire.





06. Summary EstroG-100





- ✓ Natural Botanical Menopause Solution
- Clinically Proven to be effective and safe
- Significantly improves 10 menopausal symptoms
- No side effects
- ✓ No estrogenic activity
- International Approvals(US, Canada, Europe)
- Manufacture at GMP facility

EstroG-100 is a powerful combination of three botanical root extracts proven to relieve the toughest symptoms of menopause whether you're 40 or 60. Inspired by traditional Korean herbs used for centuries, this revolutionary formula is standardized, consumer tested and clinically proven to be safe and work fast on the most common effects of menopause. So just because "the change" is part of your life, it doesn't mean symptoms have to be.

Paper published in Healthcare sector of MDPI

Safety Assessment of Endocrine Disruption by Menopausal

Healthcare 2021, 9, 1376



MDPI

Review

Safety Assessment of Endocrine Disruption by Menopausal Health Functional Ingredients

Soyeon Kang 10, Hagyeong Jo 2 and Mee-Ran Kim 3,*

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Abstract: During menopause, women experience various symptoms including hof flashes, mood changes, insomnia, and sweating. Hormone replacement therapy (HRT) has been used as the main treatment for menopausal symptoms, however, other optiona are required for women with medical contraindications or without preference for HRT. Functional health foods are easily available options for relieving menopausal symptoms. There are growing concerns ergarding menopausal functional health foods because the majority of them include phytoestrogens which have the effect of endocrine disruption. Phytoestrogens may cause not only hormonal imbalance or disruption of the normal biological function of the organ systems, but also uterine cancer or breast cancer if absorbed and accumulated in the body for a long period of time, depending on the estrogen receptor binding capacity. Therefore, we aimed to determine the effects and safety of menopausal functional hinghoitens and medicines on the human body as endocrine disruptors under review in the literature and the OECD guidelines.

check for updates

Citation: Kang, S; Jo, H; Kim, M.-R. Sakty Assessment of Endocrine Disruption by Menopausal Health Functional Ingredients. *Healthcare* 2021, 9, 175. https://doi.org/ 10.2390/healthcare9101376

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Copyright © 2021 by the authors, License MDPQ, Basel, Switzerland, This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC: IP) license (https:// coativecommons.org/lisenses/by/ 40/). Keywords: menopause; functional food; gynecology; phytoestrogens; estrogen receptor alpha; estrogen receptor beta; endocrine disruptors; safety

The average life expectancy of human beings is increasing with improvements in standards of living, economic level, scientific advances, and medical technology. The mean age of menopause is reported as 49.9 years [1], and menopausal women live an average of 30 years or more after menopause [2]. In addition, as women's education and living standards improve, personal and social interests in the treatment of menopausal symptoms and health care after menopause are increasing. Menopausal transition begins when the function of the ovaries begins to weaken, and it ends when ovarian function disappears completely with loss of female fertility [3,4]. During the period of menopausal transition, which usually begins a few years in advance and typically ends one year after the final menstrual period [3,5], women experience physical symptoms including hot flashes, sweating, muscle pain, and genitourinary symptoms, as well as psychological symptoms such as irritability, nervousness, anxiety, insomnia, and depression [3,6,7]. For these reasons, health management is considered very important for middle-aged women experiencing menopause. Hormone replacement therapy (HRT) has been used as the main treatment for menopausal symptoms, although other options are required for whom HRT is not available because of personal preference or medical contraindications such as hormonally dependent cancers [8]. Prescription therapies such as selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine uptake inhibitors (SNRIs), gabapentin, and clonidine

have shown some degree of efficacy as nonhormonal treatment options in women with

Healthcare 2021, 9, 1376. https://doi.org/10.3390/healthcare9101376

1. Introduction

https://www.mdpi.com/journal/healthcare

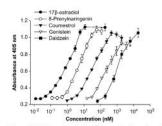


Figure 15. Estrogenic activity of 8-percey/haringenin and phytoestrogens in human endometrial adenocarcinoma (lishikawa Var I) cells. Reprinted from Miligan, S.R.; Kalita, J.C.; Heyerick, A.; Rong, H.; De Cooman, L.; De Keukeleire, D. Identification of a Potent Phytoestrogen in Hops (Humalus lupulus L) and Beer, J. Cin. Endocrind. Metab. 1999, 84, 2249–2252, with permission. ©1999, Oxford Intenessy Press [67].

4.2.10. Complex of Cynanchum wilfordii Hemsley, Phlomis umbrosa Turczaninow, and Angelica gigas Nakai extracts (CPAE)

CPAE is a complex extract composed of Cynanduum ailfordii Hennsley, Piloimis umbroas Turczaninow, and Angefica gigas Nakai. It does not bind to the estrogen receptor, but exhibits an effect similar to that of estrogen. This estrogenic activity without binding to ER was demonstrated in experiments using both HeLa-9903 cells according to OECD test guideline 455 and MCF-7 cells (Figure 16) [68].

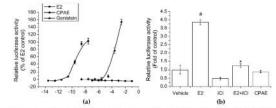


Figure 16. Estrogenic activity of CPAE using luciferase promoter activity in (a) HeLa-9003 cells and (b) MCF-7 cells, nespectively. Bars represent mean \pm SD. # p < 0.05 vs. control; and * p < 0.005 vs. E2. Reprinted from Kin, SJ. Jin, S. W. Lee, G.H.; Kin, Y.A.; Jeong, H.C. Evaluation of Estrogenic Activity of Extract from the Herbal Mixture *Cynnuchum utifordii* Hemsley, *Plomis umbrosa* Turczaninow, and *Argefica gigas* Nakai. Taxicol. Res. 2017, 33, 71–77. under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0, accessed on 8 August 2021) [68].

> Improvement of BMD was shown in several in vivo studies with CPAE, and improvement of the Kupperman index, as well as alleviation of menopausal symptoms, were also confirmed in three clinical trials in Korea and the United States [111,112].

4.3. Safety Study and Side Effects of Functional Ingredients

Black cohosh extract, which is used as a medicine to treat menopausal symptoms in Korea, contains various bioactive substances. As it has pharmacological efficacy, many





Thank you for your attention

Naturalendo Tech Co., Ltd. http://naturalendo.co.kr

Appendix.

Kupperman Index Questionnaire

Kupper	rman's index	<u>Questionnaire</u>		Assi	gnment l	Number:	
Date of Visit:	Date	Month	Year	-	C	visit)	
Volunteer No. :		, Name					

Please mark on proper condition

< 0 - None S-Slight M-Moderate +- Marked (Severe) >

	Severity				
Symptoms	0	S	М	+	
Hot flush or cold sweat (=vasomotor)					
Numbness and tingling (=paresthesia)					
Trouble sleeping (=insomnia)					
Nervousness					
Feeling blue or depressed (=melancholia)					
Dizzy spells (=vertigo)					
Tired feelings (=fatigue)					
Rheumatic pain (=arthralgia and myalgia))					
Headaches					
Pounding of the heart (=palpitation)					
Sensation of crawling on the skin (=formication)					
Menopausal Index (Sum)					
Sensation of dryness or burning in the vagina, difficulty with sexual intercourse (=vaginal dryness)					