

SEA BUCKTHORN + VITAMIN D

SUPPORTS IMMUNE SYSTEM HEALTH AND
REDUCES FREE RADICAL FORMATION.

EMPOWERING YOUR
INTIMATE WELLBEING

VEEFORME.COM.AU

WHAT IS SEA BUCKTHORN?

Sea buckthorn (SBT) (*Hippophae rhamnoides* L.) belongs to the family Elaeagnaceae. SBT oil derived from the pulp and seed of the fruit provides a rich source of biologically active nutritional factors from a plant base that are reported to have a range of benefits in human health and wellbeing. These include vitamins A, C, E, K, riboflavin, folic acid, fatty acids (palmitoleic, oleic, linoleic, linolenic acid), phytosterols (ergosterol, stigmasterol, lanosterol, amyryns), flavonoids (isorhamnetin, quercetin, kaempferol and their glycosides), carotenoids (α , β , δ -carotene, lycopene) and some essential amino acids (1,2).

SEA BUCKTHORN NUTRITIONAL PROFILE

The fatty acid component of SBT is crucial to its therapeutic effect. The berries of the SBT are rich in fatty acids, with an estimated typical make-up being saturated 13.7% and 86.3% unsaturated. This includes palmitic acid, oleic acid (omega-9), palmitoleic acid (omega-7), linoleic acid (omega-6), and linolenic acid (omega-3); providing a useful array of fatty acids for oral supplementation. The oil is the only naturally occurring oil that provides a 1:1 ratio of omega-3: omega-6 (linolenic and linoleic acid, respectively) (2).

SBT is mentioned in many classical texts and pharmacopoeias of traditional healing systems such as Traditional Chinese Medicine, Ayurveda, Unani, Kampo and Russian herbal medicine where it is often utilised for the maintenance of healthy skin and mucous membranes. Modern research and application suggest SBT has anti-inflammatory, cardioprotective, mucous membrane protective, immunomodulatory, antioxidant and antimicrobial properties.



Minerals

Ascorbic acid

Flavonoids

Phenolic acids

Tocochromanols

Carotenoids

Lipids + Fatty acids

Proteins + Amino acids

Carbohydrates + Fibre

Organic acids

Tannins

Sugars + Sugar derivatives

SEA BUCKTHORN & GENITOURINARY HEALTH

What is the Genitourinary syndrome of menopause (GSM)?

Overlooked in the perimenopausal and menopausal transition is the high incidence of urogenital tract atrophy (50% reported symptoms) (2). The Genitourinary Syndrome of Menopause (GSM) is an inclusive term that describes changes occurring in the external genitalia, pelvic floor tissues, bladder urethra, and the sexual sequelae occurring in response to reduced oestrogen levels and ageing, which do not settle with time (See Table 1). These changes significantly affect quality of life and self-esteem in individuals and are more physically and psychologically impactful than previously reported (3).

The tissue changes and subsequent symptom presentation can present at any age and from causes that present with low estrogen status in addition to menopause (See Table 2).

SEA BUCKTHORN, GSM AND TISSUE INFLAMMATION

SBT presents a novel intervention in genitourinary health to address a range of clinical issues. The unique fatty acid combination in SBT has been found to be effective for mucous membranes in various parts of the body.

The vaginal mucosa is one such site. A 3gm daily oral dose of SBT oil over three months was found to improve the integrity of the vaginal epithelium and regulate vaginal pH in people confirmed with atrophic vaginal changes in GSM(3). A small case study investigation of 3gms a day oral SBT for 12 weeks featured five patients with chronic vaginal and vulval inflammatory conditions such as Lichen sclerosis, Lichen rubor and Sjogren's syndrome. Improvement in chronic inflammation was determined in three of the most severe cases. The remaining two cases had some improvement which was not confirmed as significant (4). The impacts of SBT on the vaginal epithelium also appear to have effects on microbial colonies. A study of SBT suppositories used in combination with oral fluconazole for Vulvovaginal Candidiasis (VVC) which was complicated by abnormal bacterial microflora, showed that the SBT/fluconazole combination was superior to the fluconazole only intervention in improving the vaginal microflora and associated vaginal pH (5).

Topical application of SBT to the vagina and cervix also demonstrated improvement in cervicitis when combined with other traditional Chinese herbs and when applied alone (4). It is recommended that the clinical cause of cervicitis be determined prior to the use of SBT to ensure implicated STIs have been ruled out.

SBT has applications in non genitourinary inflammation such as dry eye, dermatitis, dry skin, skin ageing and dry mouth when used topically and when taken orally.

SEA BUCKTHORN & GYNAECOLOGICAL HEALTH

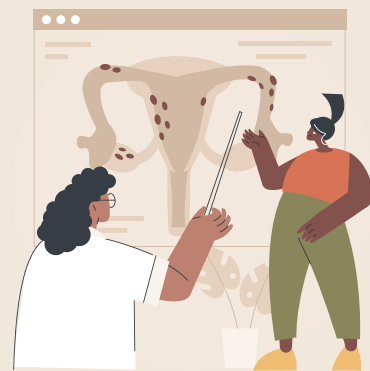
A murine study examined the impact of oral administration of a combination St Johns Wort and SBT on the regression of endometrial lesions. Findings confirmed a reduction in the volume of endometriotic implants and adhesion when compared to controls. Levels of tumour necrosis factor- α , vascular endothelial growth factor and interleukin-6 decreased. Suggesting that the combination may be an effective intervention for endometriosis (6).

GSM CLINICAL PRESENTATION

Anatomical and functional changes in genitourinary tissues in GSM

- Loss of labial and vulval fullness
- Contraction of labia majora and clitoral hood
- Narrowing and stenosis of the introitus
- Loss of hymenal remnants and reduced elasticity
- Vaginal Shortening and narrowing
- Prolapse
- Pelvic floor weakening
- Vaginal epithelium dry and thin with petechiae
- Loss of superficial cells and increase in parabasal cells
- Loss of vaginal rugae
- Inflamed vaginal tissues
- Alkaline pH changes the vaginal microbiome with loss of Lactobacilli (vaginal pH>4.5)
- Persistent and recurrent discharge with odour (not Candida in post menopause)
- Urethral meatal prominence and prolapse with thinning of the urethral epithelium
- Touch perception altered either hypersensitive or decreased feeling
- Loss of clitoral stimulation

Table 1: Anatomical and functional changes to genitourinary tissues in the Genitourinary Syndrome of Menopause. Adapted from Farrell, 2017.



RISK FACTORS FOR GSM

- Menopause
- Bilateral oophorectomy
- Premature Ovarian Failure
- Smoking
- Alcohol abuse
- Decreased sexual frequency or abstinence
- Lack of vaginal birth
- Other causes of low estrogens (post partum, breastfeeding, hypothalamic amenorrhoea)
- Cancer treatments, including pelvic irradiation, chemotherapy and endocrine therapy
- Past history of vaginal dysbiosis and low Lactobacilli levels
- (infections, STI, UTI, antibiotic use)

Table 2: Risk factors associated with the onset of the Genitourinary Syndrome of Menopause. Adapted from Farrell, 2017



Client reported symptomatic cues that could indicate GSM. Image courtesy of Intimate Ecology

WHAT IS VITAMIN D3?

Vitamin D3 (cholecalciferol) is a steroid hormone and fat-soluble nutrient found in the human body and generated by internal biochemical processes in addition to small inputs from dietary intake (7).

Vitamin D3 demonstrates an essential role in immunoregulation. It is considered crucial in the human immune response in addition to its role as a secosteroid hormone for the regulation of body calcium homeostasis (7).

VITAMIN D3 AND GENITOURINARY HEALTH

Studies assessing the role of D3 in vaginal health are limited. A 2019 systematic review concluded that vitamin D might improve the vaginal health of women, especially during menopause (8,9). Studies have assessed the impact on vaginal health utilising Vitamin D orally and topically, demonstrating that D improved the growth of vaginal epithelial cells, improved vaginal pH and decreased vaginal dryness (8).

Vitamin D sufficiency is reported to be beneficial to vaginal microbial balance in and out of pregnancy. A study evaluating the relationship between Vitamin D status and the vaginal microbiome in pregnancy found that women of European ancestry exhibited a positive correlation between plasma 25(OH)D and *L. crispatus* abundance (10). Vitamin D deficient people with African ancestry were more at risk of Bacterial

Vaginosis (BV) and to carry *Megasphaera* species (BV microbe) in their vaginal microbiome (10). The research surrounding vitamin D repletion and reduction of vaginal microbial imbalance is inconclusive. However, numerous published case reports support its use to resolve vaginal disorders such as recurrent BV, desquamative inflammatory vaginitis (DIV) and aerobic vaginitis (AV) (11-14).

Sea buckthorn and Vitamin D3 Synergy

When combined, the overall supportive actions on genitourinary health of SBT and Vitamin D3 may have a synergistic effect. This synergy has been observed in the clinical setting when applied topically in the vagina or taken orally to support genitourinary, reproductive and mucous membrane health. Low dose vitamin D (25ucg) can be used as a maintenance dose together with SBT delivered fatty acids.

CLINICAL APPLICATIONS

DOSAGE SAFETY AND CLINICAL TIPS

The suitability of topical and intra-vaginal application of SBT/D3 should be made on a case by case basis. Individual allergies should be considered prior to use. In the clinical trial setting and in published case studies SBT and D3 used vaginally were well tolerated. However, in vaginal dysbiosis levels of tissue inflammation can vary. If increased irritation is experienced from vaginal use, discontinue and reassess. Intra-vaginal use in pregnancy should consider individual client pregnancy risks (past and present) and cervical competency.

PESSARY MANUFACTURE

The SBT/D3 combination can be used to manufacture solid pessaries for vaginal application by adding 10ml to a simple 15gm cocoa butter base.

CREAM MANUFACTURE

The SBT/D3 combination can be mixed with a neutral base cream to apply externally and insert vaginally.

DIRECT OIL APPLICATION

The SBT/D3 can be applied direct to inflamed tissues e.g vulva and vagina without dilution.

SUPPORT IN VAGINAL ATROPHY AND INFLAMMATION

SBT may be set into a pessary with or without other supportive herbs (Fennel oil, St Johns Wort, Shatavari) or applied directly via a round nose syringe (0.5ml a day). An initial intra-vaginal induction application of 30 days may be appropriate for some situations, followed by 2-3 days a week for maintenance. Companion prescribing with vaginal hormone replacement therapy is warranted.

SUPPORT FOR VULVAL INFLAMMATION DISORDERS

Apply a small amount to fingertips and rub into vulval tissues daily. 0.25-0.5ml daily. Additional can be applied after toileting.

SUPPORT FOR CERVICITIS AND CERVICAL ECTROPIAN

Insert 0.5ml vaginally via a round nose plastic syringe or set pessary daily for at least a month. More extended periods of applications are also appropriate.

For all conditions, oral/vulvovaginal concurrent treatment is appropriate.

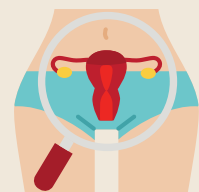
ORAL SUPPLEMENTATION

Clinical studies suggest the use of 3gms a day of SBT for therapeutic effect for most inflammatory conditions of the mucous membranes. This can be achieved by taking 1ml of the SBT/D3 liquid daily.

A minimum course of 12 weeks is recommended. After this dosage can be modified to 2 x weekly as a maintenance in cases of atrophy or lowered to 1gm daily. For some conditions treatment can be discontinued once resolved.

PRACTICAL CONSIDERATIONS

The oil can be taken direct into the mouth, mixed in food after cooking or stirred into a cold drink.



REFERENCES

1. Solà Marsiñach M, Cuenca AP. The impact of sea buckthorn oil fatty acids on human health. *Lipids in Health and Disease*. 2019;18:1-11.
2. Ciesarová Z, Murkovic M, Cejpek K, et al. Why is sea buckthorn (*Hippophae rhamnoides* L.) so exceptional? A review. *Food Research International*. 2020;133:109170.
3. Larmo PS, Yang B, Hyssälä J, Kallio HP, Erkkola R. Effects of sea buckthorn oil intake on vaginal atrophy in postmenopausal women: a randomized, double-blind, placebo-controlled study. *Maturitas*. 2014;79:316-321.
4. Erkkola R, Yang B. Sea buckthorn oils: towards healthy mucous membranes. *Agro Food Industry Hi Tech*. 2003;14:53-59.
5. Dai Z, HuaiXian L, ZhaoHui L, et al. Compound sea buckthorn seed oil suppository improves the microecological environment of vagina. *Zhongguo Weishengtaxixue Zazhi/Chinese Journal of Microecology*. 2016;28:1201-1205.
6. İlhan M, Süntar İ, Demirel MA, Yeşilada E, Keleş H, Akkol EK. A mixture of St. John's wort and sea buckthorn oils regresses endometriotic implants and affects the levels of inflammatory mediators in peritoneal fluid of the rat: A surgically induced endometriosis model. *Taiwanese Journal of Obstetrics and Gynecology*. 2016;55:786-790.
7. Di Rosa M, Malaguarnera M, Nicoletti F, Malaguarnera L. Vitamin D3: a helpful immuno-modulator. *Immunology*. 2011;134:123-139.
8. Riazi H, Ghazanfarpour M, Taebi M, Abdollahian S. Effect of vitamin D on the vaginal health of menopausal women: a systematic review. *Journal of Menopausal Medicine*. 2019;25:109-116.
9. Rad P, Tadayon M, Abbaspour M, Latifi SM, Rashidi I, Delaviz H. The effect of vitamin D on vaginal atrophy in postmenopausal women. *Iranian journal of nursing and midwifery research*. 2015;20:211.
10. Jefferson KK, Parikh HI, Garcia EM, et al. Relationship between vitamin D status and the vaginal microbiome during pregnancy. *Journal of Perinatology*. 2019;39:824-836.
11. Peacocke M, Djurkinak E, Thys-Jacobs S. Treatment of desquamative inflammatory vaginitis with vitamin D: A case report. *Cutis*. 2008;81:75.
12. Edwards L. Dermatologic causes of vaginitis: a clinical review. *Dermatol Clin*. 2010;28:727-735.
13. Geng N, Wu W, Fan A, et al. Analysis of the risk factors for aerobic vaginitis: a case-control study. *Gynecologic and obstetric investigation*. 2016;81:148-154.
14. Jones A. Bacterial vaginosis: a review of treatment, recurrence, and disparities. *The Journal for Nurse Practitioners*. 2019;15:420-423.



PRACTITIONER EDUCATION ONLY

VEEFORME.COM.AU | ARIYA.HEALTH

AUSTRALIAN OWNED AND DISTRIBUTED BY ARIYA HEALTH

62 INGHAM ROAD, WEST END, QLD 4810 | 1300 768 963