

SHORT COMMENTARY

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De Materia Medica Versus Codex Alimentarius for the Reinforcement of the Gynecologic Immune System: the Case of Endometriosis

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Abstract: Since the first Pharmacopoeia under the title “De Materia Medica,” the importance of the utilization of plants and herbs has been an invaluable medicinal tool successfully employed for strengthening the immune system for combating a number of diseases in general, or assisting fertility and reproductive issues in particular. The beneficial use of herbal extracts, constituting the basis of modern medicines, is lately under the shadow of Codex Alimentarius that threatens, if not properly applied, serious immunity features rendering the host defenseless for intercepting harmful invaders, one of which is the mesenchymal endometriotic stem cell causing endometriosis.

Keywords: Codex Alimentarius, endometriosis, immune system, reproductive issues, infertility, De Materia Medica

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Historical Background “De Materia Medica”

According to “De Materia Medica,” the first ever Pharmacopoeia written by the Greek physician, pharmacologist and botanist Pedanius Dioscorides (who lived during the first century BC), there are a number of plants and extracts that have been successfully employed for treating various and serious gynecologic conditions.¹ Among them, there is special mention on the use of the alfalfa and/or red clover, containing plant estrogens and isoflavones, prescribed for women suffering from endometrial hyperplasia, while mastika and/or its oil was used for alleviating pelvic pains since—as it is known today—mastika diminishes the production of Vascular Endothelial Growth Factor (VEGF) inhibiting the proliferation of the cells of the vascular endothelium in vitro as well as in vivo.² In addition, although in the Hippocratic oath there is mention for the avoidance of abortion due to medical, ethical, and personal issues, during the seventh century BC, controlled abortion was supported by the ancient Egyptians and later by the Greeks using silphium, a member of the giant fennel family used for contraception, a treatment used abundantly by the famous gynecologist-obstetrician Soranus from Ephesus and the ancient herbalist/physician, Dioscorides.³

It is worth mentioning that even though silphium was eradicated due to its massive use, it was replaced by the similarly active fetid horehound, *Mentha pulegium* (pennyroyal), absinthe, *Commiphora molmol*, and *Ruta graveolens*, or commonly named rue.⁴ Finally, the action of the Chaste-tree fruits (chaste berries) used to regularize monthly periods and treat amenorrhea and dysmenorrhea, and also to ease menopausal problems and aid the birth process should not be ignored. Hippocrates, Dioscorides, and Theophrastus mention the use of Agnus Castus for a wide variety of conditions, including hemorrhage following childbirth and also to assist with the “passing of afterbirth.”⁵ The decoction of the herb and of the seed was good for inflammations about the womb (Dioscorides, De Materia Medica, Section: 1.135; Ref 1) and, when used in sitz baths, found suitable for diseases of the uterus (endometriosis) and female infertility. Although not significantly investigated, preliminary studies have shown that extracts of Agnus Castus can stimulate the

release of leutenizing hormone and inhibit the release of follicle stimulating hormone.⁵ Agnus Castus may also decrease excessive prolactin levels, an action that may help infertile women.⁶

Similarly, a number of plants and extracts, used alone or in combination with other natural products, have been described by Dioscorides as suitable for the strengthening of the immune system to combat streptococcal and viral infections, inflammations, edemas, and arthritis problems. Thus, in his great Greek herbal “Peri Ylis Iatrikis” (Latinized as “De Materia Medica” or “On Medical Matters” in English), there is mention on the beneficial action of many herbs, plants, trees and roots on the above named and related to immunity conditions.¹ Some representative restorative elements for the immune system found in Dioscorides’ work included valerian, nard, hazelwort, chestnut, Alexandrian senna, cardamom, saffron crocus, bitter and/or sweet almond, laurel, oil of fenugreek, lily, henna shrub, Egyptian privet, iris oil, oriental plane, coarse myrrh, pines, pine cones, savin, cedar of Lebanon, oil of cinnamon, olibanum resin, cypress, cane, bamboo, gooseberry, rose, acacia, oil tree, pickled olives, walnut, garlic, wild rhubarb, yellow gentian, bachelor’s button, mabblerley, winter-sweet marjoram, pennyroyal, pudding grass, white dittany, potherb thyme, wild trefoil, king’s clover, herb of grace, cumin, coriander, tormentil, holly herb, psyllium, lily of the valley (ephemeron), mother of thousands (helxine), water lettuce, mullein (phlomos), black sesame, indigo plant, ochre, stinkwort, old wine with honey, vinegar honey, thyme vinegar, sediment of wine and/or vinegar, grape wine, and many more.

“Codex Alimentarius”

The Codex Alimentarius, from the Codex Alimentarius Austriacus,⁷ established in the Austrian-Hungarian Empire between 1891 and 1911, provides guidelines and recommendations relating to foods, food production, and food safety.⁸ Lately, a controversy has arisen about the purposes of such an application, which relates to the perception that a mandatory standard has to be applied for food safety, including vitamins, mineral supplements, and/or other naturally occurring substances of plant origin. Although there is no obligation on countries to adopt Codex standards as a member of either Codex or any other

international trade organization, there are fears that certain supplements, vitamins, and/or herbal products with known beneficial action will be banned—if not timeously registered—as dangerous for the public health. This alarming view stems from a proposal set in 1996 by the German delegation that no herb, vitamin, or mineral should be sold for preventive or therapeutic reasons, and that supplements should be reclassified as drugs.⁹ Thus, Codex Alimentarius appears as one of the major bodies behind the effort to limit access to nutritional products, creating a hole in health and competent immunity issues especially when the European Union's Food Supplements Directive agrees with these guidelines concerning vitamins and other supplements.¹⁰ Although Codex Alimentarius' position is that no supplement is going to be banned, but rather it will be subjected to labeling and packaging requirements for setting the criteria for maximum and minimum dosage levels according to their ingredient sources, these statements have not been totally persuasive about the free and/or legal use of certain plants, herbs, and other natural products, representing the alleged “mother nature's traditional remedies.”

The Case of Endometriosis

Published work has proposed a rational hypothesis,^{11,12} according to which the dietary habits of today's young female population and the uptake of certain fat-burning supplements, experimentally shown to be responsible for the establishment of infertility and stage IV endometriosis in the mouse,^{13–15} may lead to an imbalanced caloric restriction (CR) pattern,^{16,17} that in turn sets the conditions that are (or resemble those of) a “premature” immune senescence state ultimately dictating a problematic surveillance mechanism and thus a crippled immune system.¹⁸ Although the term “immune senescence” refers to age-related conditions, and the term “premature immune senescence” may be judged as unrealistic given that it contradicts age-related cases, such a state actually exists and has been reported for a number of medical cases—for example in juvenile idiopathic arthritis,¹⁹ or in unbalanced CR states.²⁰ The establishment, however, of premature senescence may not only be due to the modern lifestyle or the uptake of certain nutritional supplement(s) as mentioned above, but also to genetic/hereditary, environmental, endocrinologic, immunologic, and many more factors

that have been accused for the initiation of the disease (for a full review, see Vassiliadis).¹²

Thus, a frail immune system suffering premature senescence and lacking the proper surveillance renders the immune mechanisms incapable of intercepting the non-hematopoietic mesenchymal endometriotic stem cell (MESC),^{18,21} which ultimately differentiates, invades the system, and migrates to tissues creating an endometriotic state (Fig. 1). As an antidote to such weakness, the use of natural products and their extracts has been proposed for the fortification of the immune system as they can reconstruct its functionality and render it fully competent against the invading MESC. Briefly, there is documented proof from European as well as US patents that certain natural products like pine bark extracts (Pycnogenol®: Horphag Research, Cointrin, Geneva, Switzerland [<http://www.pycnogenol.com/home/home/>]), almond skins, *Agaricus Blazei* Murrill, and Oleuropein have been tested successfully and represent the ideal “herbal remedies” able to fortify the immune system vis-à-vis a number of harmful invaders, one of which is the endometriosis-causing MESC (for a full review see Vassiliadis).¹⁸ This novel therapeutic suggestion stems from the teachings of Pedanius Dioscorides' “De Materia Medica,”²¹ since the utilization of plants and herbs, some of which have been named above, has been proven successful for fighting and/or confronting many diseases via the strengthening of the immune system,²² as well as managing several conditions dealing with fertility and reproductive issues.²³

Finally, it is worth mentioning that another possibility of why the MESC escapes the attention

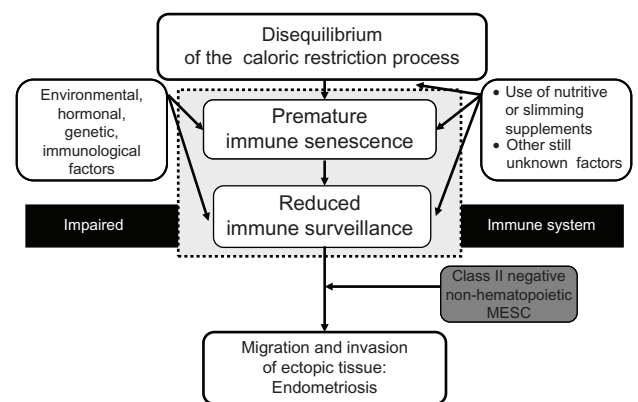


Figure 1. Portrayal of events leading to endometriosis: imbalanced caloric restriction as the cause of an inoperative immune system unable to intercept the MESC.

Abbreviation: MESC, mesenchymal endometriotic stem cell.



of the immune system may be found on the MESC itself. It is known that this non-hematopoietic cell lacks the class II surface histocompatibility antigen postulated to account for immune surveillance escape in natural and malignant conditions.^{24,25} Since the acquired knowledge on MESCs is still sparse, such an option needs to be further investigated especially in relation to a fortified immune system, according to Dioscorides' teachings.

Conclusion

Taking into account today's socioeconomic parameters, it becomes apparent that, for a strengthened immune system (in relation to (in)fertility and/or possibly other health-related issues), the use of natural plant products gains grounds vis-à-vis conventional chemical treatments. Compliance with Codex Alimentarius is imperative; however, there must be a serious reconsideration of some of the stringent conditions imposed, as well as a clear thesis on the use of a number of natural substances with known and documented healing properties.

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