Toxicity and Prevailing factors on Thyroid gland and its Herbal Treatment - A review

Naga Ashwini.V, Sagarika Srinivasan, Suganya Jeyabaskar, M.Thenmozhi*1
1Research Scholar, Department of Biotechnology, School of Life Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Chennai-600117, Tamil Nadu, India.
2Assistant Professor, Department of Bioinformatics, School of Life Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Chennai-600117, Tamil Nadu, India.
3Associate Professor, Department of Biotechnology, School of Life Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Chennai-600117, Tamil Nadu, India.

Correspondence author: M.Thenmozhi, Associate Professor, Department of Biotechnology, VISTAS.
E-mail: drmthenmozhi@gmail.com
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Abstract

The human body is one of the very apt examples to understand that many systems have to work in rhythm and coherence in order for overall functioning, including systems that work together like the cardiac system, respiratory system, renal system, nervous system, digestive system, endocrine system, and many more. Regard to each system plays many specific and magnificent roles in the body and helps in the sustenance of life. This paper throws light on the specificity of the endocrine system and enables many facts of roles in the human body, governing vital functions through its governing functions as well as its prevailing factors leading to toxicity, also discussing its herbal remedies for the malfunctions caused due to this system. They could be many perfectors to these conditions like toxicity, lifestyle patterns, medications, comorbid factors, and many more. Toxicity could be of various reasons which would affect the various biological synthesis of the human body. The hormonal balance that needs enzymes and chemical compounds to support its normal cycle would interfere with the chemicals, metals etc that are present in the environment and causes toxic agents which would disrupt the normal synthesis, thus leading to various disabilities, ailments, and disorders etc. It is thereby discussed through the correlation of multiple reviews that when there is a lack of stasis in the system, could disrupt the ability of the body to adapt to multiple bodily outcomes. Thyroid disorder is one of the major prevailing conditions due to the misfunctioning of the endocrine system.

Keywords: Endocrine system, Hormonal imbalance, Thyroid, Environmental effect, Herbal remedies

INTRODUCTION

The human system compromises of different functioning of various organs that go hand in hand for the sustenance of life. These systems ought to work in coherence to maintain stasis of the body, and when there is a lack of such stasis or balance of working of a particular system in the body, gives rise to multiple complications, thereby leading to health disorders. An apt example of this can be the misfunctioning of the system such as the endocrine system that which leads to complications in this system, usually causing an imbalance of hormones. This imbalance can lead to various health complications that vary from the root cause of hormones in the human body going on a quack that aids in conditions such as PCOD, PCOS, Diabetes and its variants such as Type 1 diabetes, Type 2 diabetes, Juvenile diabetes, Gestational diabetes and so on, as well as the other prevailing condition of the imbalance of the endocrine system, the thyroid disorder ranging from hyperthyroid, hypothyroid as well as an autoimmune condition that is encompassed with the impaired TSH (Thyroid Stimulating Hormone), T3 (Triiodothyronine), T4 (Thyroxine), TGAb (Thyroglobulin antibody) as well as TPO (Thyroid peroxidase) antibody. The factors that yield or result in such conditions range from the factors of toxicity as well as other factors such as lifestyle parameters or pre-existing medical conditions. The biological changes happen not in-vivo but due to additional factors and external factors, in the environment, many toxic compounds are present in the form of meta chemicals and pollution etc. The extent of toxicity and concentration of the affecting metals have an adverse effect on the human body that causes hormonal and biological disorders however there are great approaches for the treatment and cure of such disorders through the usage of herbal remedies, as such medicinal plants have many vital pharmacological and therapeutic effects.
FACTORs THAT AFFECT HORMONAL BALANCE

The human body comprises various hormones that are usually governing the function of governing a very vital gland in the body, namely the endocrine gland and system. These hormones are usually generated in the specialized system and glad as mentioned, the endocrine gland helps indeed to manage as well as modulate various activities in the human body through the domination of cells and different systems of the body. These tend to have many magnificent features in the human body that help in different uses like that of regulation of body temperature, mood, emotions, body metabolism, and circadian rhythm, in the promotion of growth and development. However, not always is there stasis of balance noticed in the regulation of hormones. There are various precursors that are withheld and it must be thrown light upon such various parameters that are linked to the imbalance of such hormones.

Usually, the term hormonal imbalance occurs in the human body when there is an excess or very little hormone that is produced. These hormones are also known for their actions as chemical messengers giving out signals that are natural from the endocrine system. When there is a lack of balance of such signaling of hormones in the human body is the curser that gives rise to multiple issues that thereby lead to various health complications. Many factors are to be quoted that could cause such imbalance, especially in the current day lifestyle habits, most of the populational crowd have been seen to have much of a hormonal imbalance. These lifestyle habits are to do with the activity levels of an individual, dietary habits, circadian cycle, and social habits. When such lifestyle parameters are compromised it thereby leads to the disability of the body to perform by itself, which thereby means the disability of hormones to be produced or signaled adequately to sustain the bodily process. While lifestyle factor is one of the parameters, the other main one is medical conditions or comorbidities.

The most common medical factors include diabetes, PCOD, PCOS, thyroid, Addison’s disease, and many more. While there are many conditions as discussed above, one of the major contributing factors and pharmacological conditions that result in hormonal imbalance is the condition of the thyroid gland which leads to many facets of disorders. The thyroid gland produces hormones such as thyroxine known as the T3 hormone, tri-iodothyronine known as the T4 hormone as well as thyroid-stimulating hormone, which is known as TSH. The thyroid gland is visualized in the anterior part of the neck, below Adam’s apple. Disorders of this hormone are one of the most prevalent health conditions. According to past studies, many millions of people are diagnosed with endocrine issues, across both genders, and ages (Anushka Agarwal et al., 2018). Like Hyperthyroid which is due to overproduction of the thyroid hormones, hypothyroid is due to impaired production of the thyroid hormones or gland, thyroid, it is which is the inflammation of the thyroid gland as well as the autoimmune condition known as Hashimoto’s thyroid it is as well thyroid cancer. With this gland playing many vital roles, the dysfunction of the same due to several parameters is to be understood in order to get a hang of hormonal imbalance and its impacting factors.

RISK FACTORS THAT CAUSE THYROID

With the manifestation of a disease, a condition in those with its correlating pointers that are said to trigger the and become the causative factor in the prevalence of the condition, having said that it is to be thrown light upon that many factors are to be precursors that lead to causing hormonal balance and are such which is associated with factors leading to the conditions. It can be due to various factors such as age, gender, the pregnancy period, genetic factors, an existing or a prevailing medical condition, improper lifestyle especially sedentary factors, and improper nutrition, dietary factors especially concerning iodine levels in the diet, medications, and presence of iodine in scans, as well as certain disease conditions which encompass the condition as its side effect, and one of the major factors that result in the thyroid is the contributing parameter of stress, as well as usage of drugs and medications that are usually prescribed for cardiac issues, for over functioning of the endocrine systems. With regard to the lifecycle of pregnancy and lactation usually has curved more towards the raise of hormonal fluctuations there by leading to conditions mainly such as gestational diabetes, as well as thyroid where the levels have raised up fairly.

It is also to be noted that diseases of the brain and especially concerning with the hypothalamus, can cause raise to hypothyroidism as well as other impaired functioning of other glands like the pituitary gland, which inhibits the production of thyroid-stimulating hormone commonly called the TSH hormone (Michael 2009). Usually, the thyroid hormone when at the compromised state leads to a fair raise in the thyroid-stimulating hormone and it is seen with coherence with the raise that can be examined in blood markers of values such as the TSH levels, T3 as well as the T4 levels to get a vast picture (Thea et al., 2003). However in the condition of Autoimmune condition that is a very prevailing factor of the thyroid condition that would not be seen clearly just with the profile of markers mentioned above and the thyroid peroxidase auto antibodies (TPOAb), thyroglobulin autoantibodies (TgAb) values are ought to be tested upon and in such conditions of autoimmune is seen a very high curve of values of the markers and however, the prevailing causative factors are seen to be diagnosed at the early stages for prophylaxis and curing through an adequate focus on the clinical condition at the early stages (Mounika et al., 2013). It can be inferred that the study of the condition and its causative factors, screening at an early stage, and standard protocols that are adhered to in treating and curing the illness can yield in controlling the prevalence of the condition.

ENVIRONMENTAL TOXICITY:

The most important cause for the polycystic ovarian syndrome (PCOS) and polycystic ovarian disease (PCOD) could not
just be the \textit{in vivo} conditions. Due to many external factors, surprisingly toxicity is present in everyday used products. Not just reproduction-related problems but also the future generation will have genetic defects for example Attention deficit hyperactive disorder (ADHD) etc. To the surprise, many day to day usage products are involved the levels of the toxic chemical that invade and imbibe into the human physical body majorly the drastic effect is on gene system (Kelly 2021). Many free metals are spread in the environment according to their density the metals vary as to their impact. Environmental toxicity is an increasing problem for ecological, environmental, nutritional and evolutionary reasons. Endocrine-Disruptors (EDs) caused due to heavy chemicals that involve in reproductive, developmental, brain, and immune-related disorders. People are exposed to multiple ED’s hence it is difficult to assess what type of toxicity causes what type of effect (Amaral 2002).

a. Everyday usable plastics like storage and food containers etc.
b. Herbicide-applied vegetables
c. Flexible plastic toys
d. Cosmetics like creams, moisturizers, soaps, Liquid body wash, Lotions etc
e. Tofu, Soya products
f. Furniture, Foam, and carpets

Environmental toxicity simply means the body’s sensitivity that leads to health problems that occur during diet, air, skin, and water etc.

**CHEMICAL TOXICITY:**

As the word says the toxic aspects that cause an imbalance in hormonal activity and any type of biochemical cycle disruption due to various chemicals that are present in the environment and other modes of toxicity s from synthetic drugs that causes side effects etc. The below-mentioned chemicals are not just toxicity-causing agents but also Endocrine disruptor’s too due to which the endocrine hormonal imbalance happens (Monisha 2014).

A. Phytoestrogens: They mimic hormonal activity, Genistein and daidzein that are in soy products like Tofu and soya etc.
B. Triclosan: Personal care products like body wash and face wash, hand wash etc whichever has Anti-microbial activity is rich in Triclosan chemical.
C. Polychlorinated Biphenyls (PCB): PCBs are the first industrial compounds that were banned worldwide, PCB’s bioaccumulation leads to Hypothyroidism, Behavioral Problems, Auto Immunity Cognitive disorders etc. PCB’s presence in electrical equipment like transformers, lubricants, and plasticizers etc.,
D. Polybrominated Di Phenyl Ethers (PBDE): Used in flame retardants, especially in households like furniture, furniture foam (Polyurethane) and carpets etc. These chemicals cause Tumours, Neurodisorders, hormonal imbalance, especially thyroid.

**METAL TOXICITY:**

Metal toxicity or metal poisoning is the toxic and adverse effect of metals on the forms of life however the doses or the levels of the metal cause poisonous insoluble compounds. The general symptoms of chemical toxicity are diarrhea, nausea, abdominal pain, vomiting, shortness of breath, chills and weakness etc. Toxic heavy metals are listed and their effects on the various parts of the body (Mahadi 2021).

i) Mercury (Hg): Mercury is found in air, water and soil. Mercury is mostly in liquid form at room temperature which can easily be evaporated. In the vapor state mercury is most hazardous. Mercury enters the food chain of aquatic animals and eventually via seafood consumption it enters the human body. Chronic mercury toxicity causes neurological damage, ataxia, muscle weakness, numb limbs, speech disturbances, chewing, brisk and increased tendon reflex, Infants who have severe developmental disorders were born from the affected pregnant mothers.

ii) Lead (Pb): Lead is equally a heavy toxic metal that is easily absorbed by the skin, respiratory system, and digestive tracts. Lead exposure can induce neurological, respiratory, urinary, and cardiovascular, exposure to lead can produce alteration in physiological functions of the body like neurological, biological and cognitive functions in the body.

iii) Chromium (Cr): Naturally occurring heavy metal that is found in the earth’s crust and seawater. Chromium is a compound that is released by chemical industries that is absorbed in soil, groundwater and air. Chromium can cause a variety of diseases like lung cancer, larynx, bladder, kidneys, testicles, bone and thyroid etc.

iv) Cadmium (Cd): Cadmium is a very rare metal that occurs naturally in soil, air and water. High levels of Cd in water, air, and soil cause severe disorders. Substantial exposure to Cd occurring due to smoking elevates blood and urine Cd concentrations. Cd may also occur in alloys, glass, and battery production. When toxic levels increase it will affect the kidneys, heart and lungs (Abirami 2007).

v) Arsenic (As): Arsenic is one of the harmful heavy metals, it is known as the King of poison as it is present as contamination in food, water, and the environment. Arsenic exists in the form of a metalloid. DNA damage of
airway cells was observed following. Intake of As leads to spontaneous abortion, stillbirth, and preterm birth, and the male reproductive system are affected (Hopenhayn et al 2012).

HERBAL TREATMENTS

The herb is a plant or part of plant that has its scent, flavor, and its therapeutic properties. Herbal medicines do not have side effects, nor are they harmful is the belief not necessarily that it is. Could cause many side effects also serious harm, a particular compound or component needs to be separated and used as a medicine or decoction when regular intake of that particular secondary metabolite compounds from any part of the plant might cause cure for many disorders by regularizing the biochemical synthesis. Though herbal treatments or remedies can be used as an alternative or supportive medicine, during emergencies this treatment is not accepted medically. Herbal medicines are swallowed as pills, powders or tinctures. They are brewed as Tea, and applied to the skin for allergies as gels, lotions, and creams. Some herbs are used as oils and painkiller bath sauna etc. The practice of using herbal supplements as treating or remedy agents was practiced way back thousands of years ago. However, it is recommended across the globe nowadays, it is always best to consult the doctor for symptoms and side effects (Linda C Tapsel 2006).

Table 1: Medicinal plants and its therapeutic effects are listed below

<table>
<thead>
<tr>
<th>MEDICINAL PLANT ASSOCIATED WITH THE ENDOCRINE SYSTEM</th>
<th>COMMON NAME</th>
<th>COHERENT PHARMACOLOGICAL ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigella sativa</td>
<td>Black cumin</td>
<td>Being one of the medicinal plants, containing the components thymoquinone governing stasis of hormones in the body (Mahdieh et al., 2016).</td>
</tr>
<tr>
<td>Withania somnifera</td>
<td>Ashwagandha</td>
<td>The property of this herb being an Adaptogen helps in aid to cure of major stress in the human body due that occurs due to the dysfunction of the Endocrine system and is also known to help balance the hormonal levels due to various pharmacological properties there by curing conditions such as PCOD, thyroid Etc (Umadevi et al., 2012).</td>
</tr>
<tr>
<td>Vitex agnus-castus</td>
<td>Chaste tree</td>
<td>Yet another medicinal herb that works in order primarily to fix hormonal imbalances mainly to do with thyroid, PCOD working with coherence with the pituitary and the endocrine gland (Branka 2016).</td>
</tr>
<tr>
<td>Capparis spinosa L</td>
<td>Caper bush</td>
<td>Providing various chemical components that go in relation with pharmacological activities with providing cure to hormonal fluctuations there by help stabilizing the balance of such functions due to its coherent work with the Endocrine system (Sharrif et al., 2012).</td>
</tr>
<tr>
<td>Melissa officinalis</td>
<td>Lemon Balm</td>
<td>Melissa officinalis, commonly called lemon balm plays many specific roles with equalizing Hormonal patterns in the body and thereby fix conditions such as thyroid, diabetes, PCOD and many more pharmacological conditions (Eric et al., 2006).</td>
</tr>
<tr>
<td>Nasturtium officinale</td>
<td>Watercress</td>
<td>Nasturtium officinale a very known medicinal herb Encompassing various features of the ability on working in par with different systems of the human body to cure and maintain stasis of the system. Due to its presence of alkaloids, flavonoid, and many other chemical constituents along with vitamins and minerals helps with an order to create activities that</td>
</tr>
</tbody>
</table>
NIGELLA SATIVA

*Nigella sativa*, commonly known as black cumin seeds, belonging to the family Ranunculaceae is one of the most pronounced herbs that have manifested to multiple pharmacological characteristics. It encompasses various medicinal properties and constituents that hold in treating and curing of illness of the human body. It is usually used in various sources of medicine, ranging from Ayurveda, to Unani as well as in Siddha due to its ability in treating and curing of many medical conditions (Aftab et al., 2013) this magnificent medicinal plant has shown to play a very vital role in the treatment of the thyroid. The presence of the component quinione, is the reason as to this medicinal plant encompasses great medicinal features. Past studies have shown that, when *Nigella sativa* in powdered form that was administered to subjects with the condition of Hashimoto’s thyroid it is which is a much-complicated stage and form of thyroid condition, resulted in improved values of the blood markers as well as the anthropometric levels and also the change in vascular endothelial growth factor parameters (Mahdieh Abbasalizad et al., 2016). Another study showed that when *Nigella sativa* was administered to wistar albino rats in the form of oils, with the help through gastric gavage with the dosage at 200 mg/kg body weight where about 48 rats where it was seen that the group treated with the oil was seen to gradually decrease the triiodothyronine levels in the blood (Gulcan Avci et al., 2021). Thymoquinone which is found in the seed oil of *Nigella sativa* is widely used as a traditional medicine, it has high health benefits like Antithyroid, Anti-cancer, Anti-inflammatory Antioxidant etc. (Hatrice 2020).

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Common Name</th>
<th>Medicinal Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cimicifuga racemosa</em> L</td>
<td>Black cohosh</td>
<td>Compound Remifemin present in <em>Actaea racemosa</em> has various medicinal properties like gastrointestinal upsets, rashes, Hepatic, Adrenal glands disorders, cardiovascular and circulatory disorders (Sakineh et al., 2013).</td>
</tr>
<tr>
<td><em>Origanum majorana</em></td>
<td>Majorana</td>
<td>This herb is an effective food preserving agent. It is an effective antimicrobial agent, compounds Terpenoic and phenolic compounds, such as carvacrol and thymol present in this herb is used as Antioxidant agent and adrenal gland balancing agent (Jana et al., 2017).</td>
</tr>
<tr>
<td><em>Ajugareptans</em></td>
<td>Bugleweed/Carpetweed</td>
<td>Bugleweed is used to lower high levels of thyroid hormones (hyperthyroidism).It is also used to treat premenstrual syndrome, breast pain, nervousness, (insomnia) and bleeding, especially nosebleeds and heavy bleeding during menstruation (Edward 2019).</td>
</tr>
<tr>
<td><em>Lithospermum erythrorhizon</em></td>
<td>Gromwell</td>
<td>It is a soap root, effective for anal cancer, Arthritis, Hyperthyroidism, Tumors, Bladder stones, Fatty acids, Antiviral, Grave’s disease(Kelly et al., 2018).</td>
</tr>
<tr>
<td><em>Astragalus propinquus</em></td>
<td>Huang qi or Milkvetch/locoweed</td>
<td>Protects the immune system, prevent cold, and upper respiratory infections treats diabetes, protects liver and corrects adrenal glands(Mohammad et al.,2020).</td>
</tr>
<tr>
<td><em>Eleutherococcus senticosus</em></td>
<td>Siberian Ginseng</td>
<td>It is the best Adaptogen to prevent colds and flu, increase energy, longevity, and vitality. Hyperthyroidism(Mathias et al.,2014).</td>
</tr>
<tr>
<td><em>Palmari palmata</em></td>
<td>Dulse</td>
<td>The Astringent aspect of <em>Palmaria palmate</em> used to treat gum ailments, toothache, bleeding Hypothyroidism (Kaushik 2018).</td>
</tr>
<tr>
<td><em>Eisenia bicyclis</em></td>
<td>Sea oak/ Arame</td>
<td>This herb is a package of vitamins, Minerals, Iodine, iron, magnesium, calcium and other forms of important metals that are useful for the body. The Iodine content present in the herb is helpful to cure Thyroid (Chapman 2013).</td>
</tr>
</tbody>
</table>
WITHANIA SOMNIFERA

Withania somnifera is usually termed as Ashwagandha also called as Indian Ginseng, as well as Indian winter Cherry and is said to be one of the very major used medicinal plants in the field of medicine across various fields such as Ayurveda, Siddha through many ancient years. There are many parts of the plants that are used to help treat illness, that is bent towards many remedial values. It can be inferred that both the leaves and roots of this medicinal plant have possessed various medicinal values due to its presence of many chemical and pharmacological constituents (Umadevi et al., 2012). Studies have suggested that the usage of this particular medicinal herb administration resulted in the stabilization of the values across different thyroid profiles such as the Serum TSH (thyroid stimulating Hormone), serum triiodothyronine (T3), and thyroxine (T4) levels in hypothyroid diagnosed subjects (Sharma et al., 2017). Pieces of evidence quote that the root extract of this medicinal plant was administered to mice every day for about 20 days through gastric incubation and showed to directly increase the serum triiodothyronine as well as tetraiodothyronine (Panda et al., 1998).

BACOPA MONNIERI

Bacopa monnieri, belonging to the Plantaginaceae family, commonly called Brahmi, Indian pennywort has been shown to withhold many vital pharmacological activities. It is usually used in the ayurvedic system of medicine due to its medicinal constituents that are coherent with curing of illness. It has shown to hold factors such as activities like that of anti-inflammatory, anti-convulsant, anti-depressant, analgesic, and anti-microbial properties as well as help with therapeutic usages in treating various illnesses of the human system (Sebastian Aguiar et al., 2013). It is said through pieces of evidence that the usage of this herb can help increase the thyroid panel and can be used as a prophylaxis in the condition of hypothyroid. A study suggested that the usage of this herb showed to increase the T4 concentration in the body as well as the TSH levels (Kar et al., 2002). The papers state that the usage of Bacopa monnieri, revitalizes the thyroid panel in the body and thereby helps in increasing the thyroid panel, especially the T4 and that it is a very known and vital herb in the field of Ayurvedic system of medicine (Taru et al., 2015).

FUCUS VESICULOSUS

Fucus vesiculosus also called Bladder wrack or the sea grapes has shown to increase levels of T1, T2, T3, T4, T5 hormone levels in the blood serum of rats that are treated with Fucus vesiculosus for 3 weeks with a control group noticed to inhibit thyroid peroxidase, high levels of TSH leads to decrease T3 and T4 in blood serum, and this result agrees that dietary intake of sea grapes targeted areas of free radicals as they contain anti thyroid which causes oxidative stress, after continuous 3 weeks of treatment it is found that the tissues of Thyroid gland there are clear changes in the thyroid glands for the treatment (Mary 2010). Bladder wrack is air filled bladders which keeps the upper regions of the sea as it has the high capacity of absorbing the iodine content from the sea, believed to have a remedy for Thyroid (Jill 2012).

EMBLICA OFFICINALIS

Emblca officinalis, commonly known as the Wonder berry/Amla,and the role of Emblica officinalis and extracts in regulating thyroid functions were studied in male mice. Oral administration of Emblica officinalis fruit extract for 20 days decreased serum T1 and T3 concentrations and hepatic oxygen (O2) consumption. Both the plant extracts exhibited hepato-protective effects as evidenced by decreased lipid peroxidation. In animals treated with Emblica officinalis, activities of super-oxide dismutase and catalase remained unaffected, indicating that extract of Emblica officinalis, may have a direct free radical scavenging role, there is a change in the size and activities of the thyroid gland (Bhavesh et al., 2016).

PHAEOPHYCEAE

Phaeophyceae commonly called Brown seaweed is characterized with usual deficiency of iodine that can yield harmful effects on the thyroid as well as in increased iodine intake. One source of iodine is seaweed which is used as a foodstuff in Western countries. Apart from its potential involvement in thyroidal health, gaseous iodine released from seaweed plays a significant role in treating thyroid conditions. The iodine content present in these sea plants has a natural remedy factor (Robert 2003). Iodine is an essential micronutrient that requires the necessary quantity for thyroid hormones. These Phaeophyceae has the efficiency to suffice the bodily need for iodine. As the quantity suffices the demand it is been used as edible property in many foods and beverages factories (Inger 2020).

CONCLUSION

Many facts of prevailing pharmacological conditions arise due to patterns in various spheres that don’t play in hand with the human body. As discussed, it can not only be due to patterns of the body’s defunctioning by itself but also parameters of the abode and its toxicity that gives rise to medical illness and its complications. It is to be understood that the epidemiology and pathology of such diseases vary in nature and so are their treatment and cure. Nevertheless, the usage of pharmacological plants as remedial solutions results in not just tremendous changes in reversing the condition or treating the symptoms but is also encompassed with hardly any side effects than that compared to other systems of medicine. The toxic factors that affect
the human body are present in the environment, and medicine to cure the toxic levels is also present in the environment. When there is a lock there will be a key same way if any disorder there will be a medicine too. Many kinds of pollutants and toxins are present, how they are exposed and what level of exposure decides the adverse condition. Both physical and mental conditions have an effect on exposures to various chemicals and metals etc. However, the cure factor or the control agent to bring back the human system into form is by the herbal treatments. Apart from India, there are other Asian countries that believe in natural and herbal treatments they are (Sargassum spp., Sargassaceae), Chinese yam (Dioscoreaoppositifolia, Dioscoreaceae), fritillary (Fritillaria spp., Liliaceae), Prunella (Prunellavulgaris, Lamiaceae), scrophularia (Scrophularianingpoensis, Scrophulariaceae), and rheumanna (Rehmanniaglutinosca, Scrophulariaceae), in addition to other herbs. These may not be found in Indian region but are very well present on the Asian continent. Future studies can be made in pertinence with the study of different medicinal herbs in depth that could aid in curing illness through herbal remedies. It is ought to be understood that the current trend in the field of medicine encompasses the majority of the practice of allopathy, if more studies based on the pharmacological activities of plants are done, more radiation towards treating and curing of illness through such fields can be adopted as it is always to be remembered that it may have nil or minimum side effects than that compared to other systems of medicine.

**CONFLICT OF INTEREST:**

The authors declare they have no competing interests.

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