Sargassum species and usefulness in endocrinology

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1. Introduction

Sargassum species is a group of big marine algae. The algae is very big and also known as macro brown algae or brown seaweed. It can be seen around the world and the coastal people have used it as food for years[1]. The use of Sargassum spp. in medicine is very interesting. In this short article, the authors summarize and discuss on Sargassum spp. and its usefulness in endocrinology.

2. Sargassum spp. and diabetes mellitus

Using Laminaria spp. in the patients with diabetes mellitus is an interesting application of marine natural product. There are many active compositions that can be useful for management of diabetes mellitus. For example, fucoidan is a newly detected α-D-glucosidase inhibitor from Sargassum wightii that might have a relevance to type 2 diabetes mellitus therapy[2]. Thunberol is another new sterol isolated from the Chinese brown alga Sargassum thunbergii (S. thunbergii)[3]. This biochemical compound is mentioned for its usefulness in management of diabetes mellitus[3]. Nevertheless, there is no report on using the Sargassum spp. preparation in human beings. However, there are many reports in animal models[4-6]. Hypoglycemic effect and vascular preservation properties are observable[4-6]. In addition, the antilipemic effect is also reported[4-6].

3. Sargassum spp. and obesity

Kim et al. reported their study on “lipase inhibitory activity of chlorophyll a, isofucosterol and saringosterol isolated from chloroform fraction of Sargassum thunbergii”[7]. Kim et al. concluded that Sargassum spp. can be further applied as anti-obesity agent[7]. Kim et al. also noted that “S. thunbergii could be a source for functional food ingredients for improved treatment of osteoporosis and obesity”[8]. Matanjan et al. recently studied several seaweed species and concluded that “Sargassum polycystum (S. polycystum) showed the best anti-obesity”[9]. With these evidences, anti-obesity effect of Sargassum spp. is an interesting issue for further research in medical endocrinology.

4. Sargassum spp. and hyperlipidemia

As previously noted, the antilipidemic effect of Sargassum spp. can be seen[4-6]. Recently, Raghavendran et al. studied “effect of
Sargassum polycystum (Phaeophyceae)-sulphated polysaccharide extract against acetaminophen-induced hyperlipidemia during toxic hepatitis in experimental rats”[10] and concluded that “S. polycystum extract may be useful due to the presence of active compounds possessing anti-inflammatory property”[10].

5. Sargassum spp. and hypertension

Hypertension or elevation of blood pressure is another important component of metabolic syndrome (diabetes mellitus, hyperlipidemia, obesity and hypertension). The use of Sargassum spp. in management of hypertension is a very interesting issue. There is a recent report on this topic[11]. Shin et al. recently reported on 5E- and 5Z-farnesylacetones from Sargassum siliquastrum which acted as novel selective L-type calcium channel blockers[11]. According to the report by Shin et al.[11], “potent, long-lasting antihypertensive activity in spontaneous hypertensive rats” could be seen.

6. Sargassum spp. and cancer

Cancer is an important group of non infectious medical disorders. The use of Sargassum spp. for management of cancer is a very interesting issue. Fucoxanthin is an important active chemical composition seen in Sargassum spp.[12]. Fucoxanthin was proposed for its anti-cancer activity[12]. Indeed, there are also many reports on the anti-cancer property of several components isolated from Sargassum algae[13-18].

7. Conclusions

As a marine product, there are many new evidences that Sargassum spp. can be useful in management of diabetes mellitus and obesity. As a very big algae, Sargassum species is a very interesting topic in coastal medicine. Despite its huge appearance, several advantages in medicine can be seen. The use of this big algae has been well known and proved in many conditions. The good examples are using as food source, alternative supplementation regimen for management of diabetes mellitus and obesity. There are some few researches on Sargassum species. It is no doubt that future researches and studies on this algae are useful and warranted in coastal medicine.

Conflict of interest statement

We declare that we have no conflict of interest.

References