

Journal of Coastal Life Medicine

journal homepage: www.jclmm.com



Short communication doi: 10.12980/jclm.4.2016j5-192

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Sargassum species and usefulness in endocrinology

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ARTICLE INFO

Article history:

Received 30 Sep 2015

Accepted 1 Nov 2015

Available online 15 Jan 2016

Keywords:

Sargassum

Endocrinology

ABSTRACT

Sargassum species is a group of big marine algae. It can be seen around the world and the coastal people have used it as food for years. 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

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, isofucoesterol 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 antilipemic effect of *Sargassum* spp. can be seen[4-6]. Recently, Raghavendran *et al.* studied "effect of

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The journal implements double-blind peer review practiced by specially invited international editorial board members.

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 antilipemic 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.

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