



Review on exploration of Phytochemical libraries from marine algae targetting various resistant disease

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ABSTRACT

Concern toward resistant disease is increasing now-a-days and researches are going on to identify a specific drug with minimal side effects. As synthetic drugs that are being used have many side effects and they are not that much efficient also. So, there is need of alternative natural sources that can be helpful and can target these class of drugs. In search of that, researchers have found various marine sources that are helpful in treating these diseases. Examples include sponges, soft corals, cyanobacteria and algae. Here, marine algae is taken and its phytochemical properties are shown which are helpful in treating various resistant disease like, Cancer, Malaria and antimicrobial disease. Marine algae contains several bioactive compounds which exhibit anti-inflammatory, antibiotic, anti-cancerous properties. They show diverse chemical structures that belong to various classes of secondary metabolites like alkaloid, terpenoids, macrolides etc. Here, Comparison study is shown how marine algae can be more potential drug as compared to commercially available and terrestrial plant derived products ex- quinine and artemisinin in case of malaria; Curcumin and butulin in case of cancer.

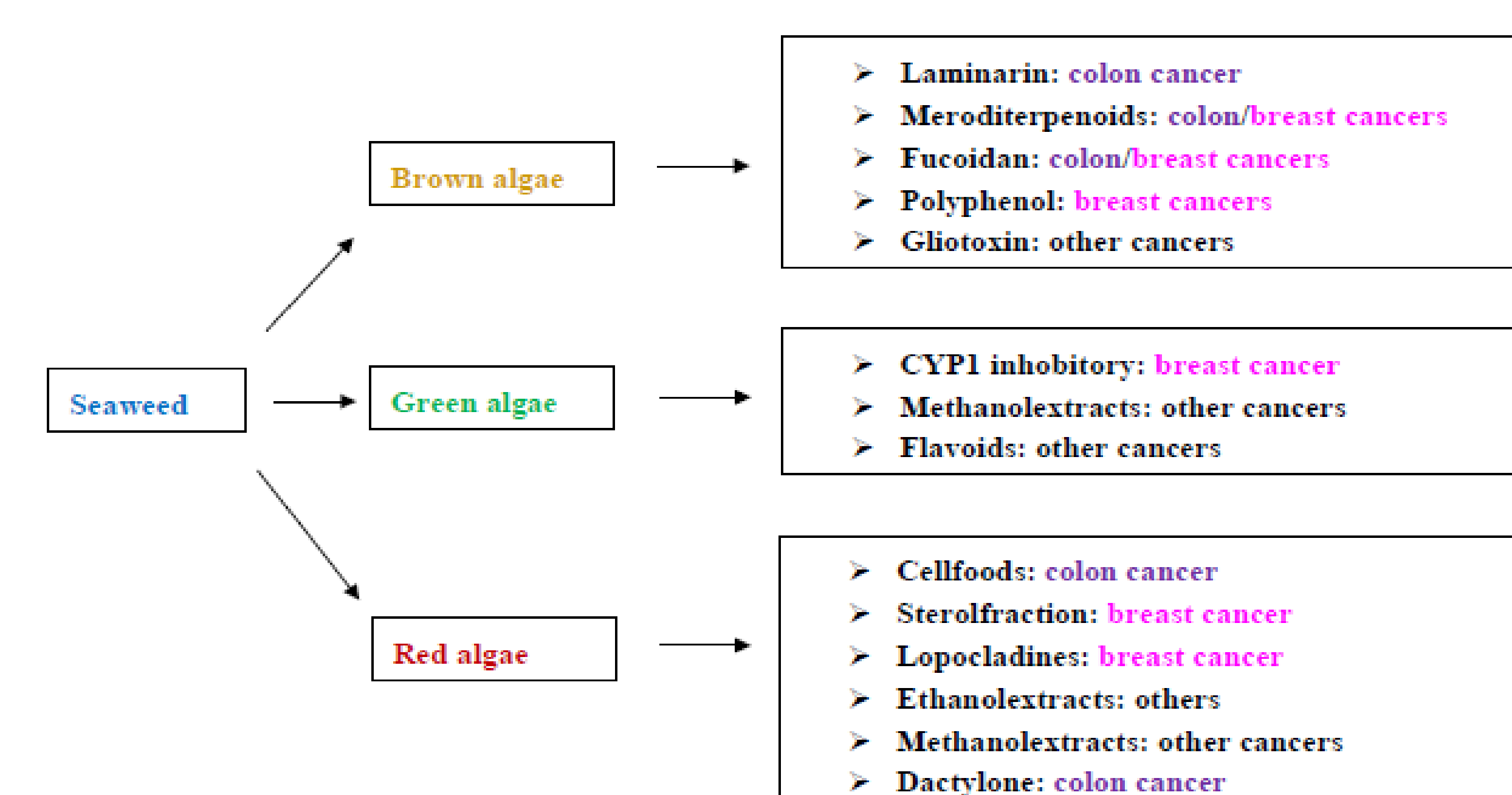
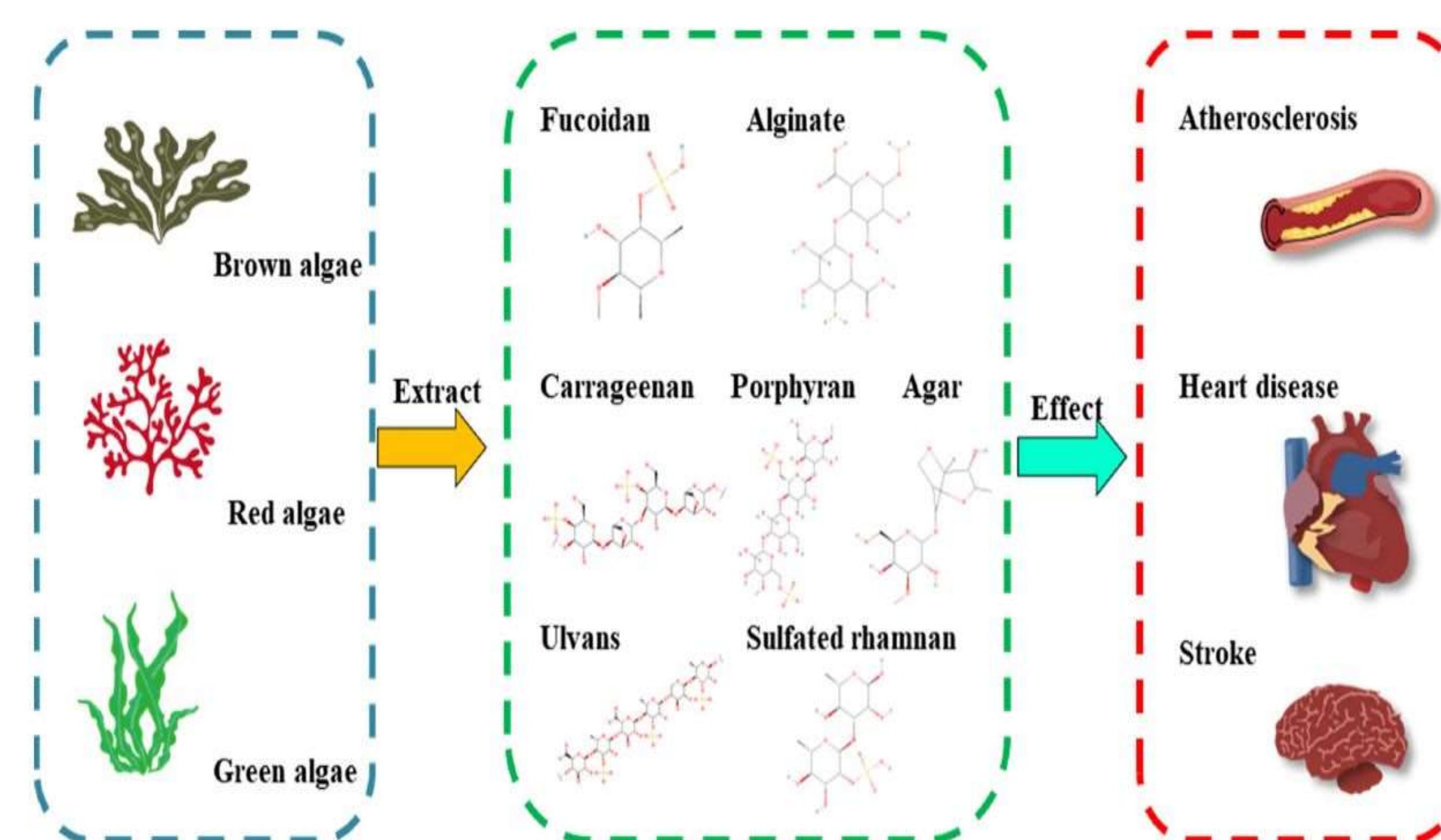
INTRODUCTION

Marine sources have played a significant role as an origin for lead molecules ascertained for various pharmacological utilizations in recent times. Interestingly, marine microorganisms remain as the most undiscovered and essential provenience of umpteen bioactive metabolites. From the shallow water in the seashore to the abysmal seaward areas that canvas 70% of the biosphere, microorganisms engross an endurable stretch. The varying temperature, pressure, and source of light in the marine system compared to the terrestrial environment possibly helps in producing novel secondary metabolites by some marine organisms.

Microbes, especially in the marine environment, can withstand high salt concentrations, high pressure, nutrition depletion, and cold temperatures. Natural sources producing biological materials, screened by high throughput screening methods for their therapeutic activity, lead to developing a commercially viable process or product. Bioprospecting marine habitat is one of the most prolific platforms because of its diverse and under passed microbial population. Microbes can easily detect, adapt, and react to their environment and compete by producing specific secondary metabolites for protection and survival.

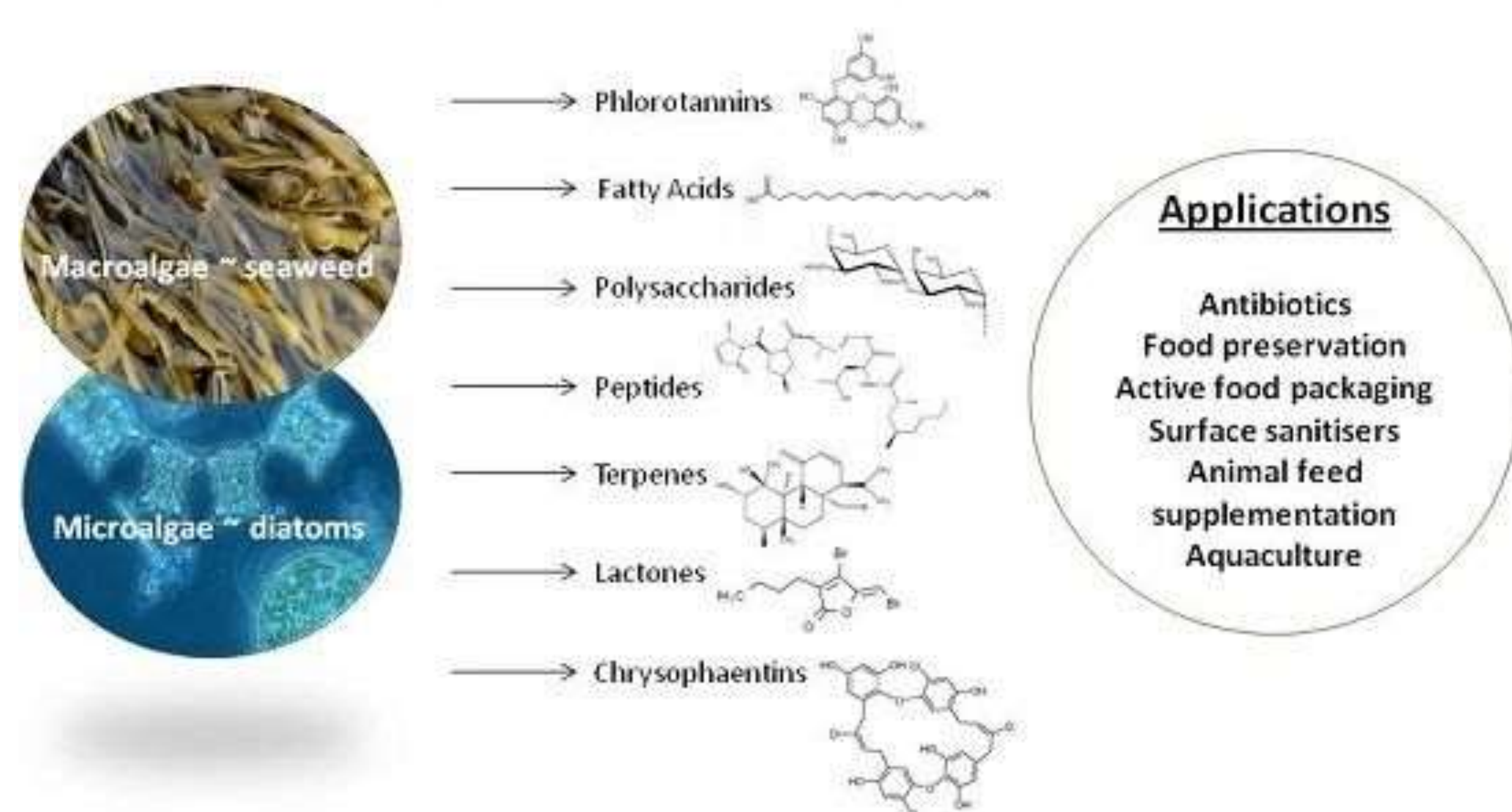
In reality, marine natural products' ecology shows that many of these compounds are chemical weapons.

From the beginning of humankind, natural products have been a beneficial source as a remedy for various ailments. In worldwide, the available drugs for clinical purpose represents more than 50% are of their natural origin. The drug discovery process from natural products is still ongoing due to synthetic drugs' side effects. The crude product has a significant impact on producing new medicines that bypass infectious diseases.



Effect of different products extracted from seaweeds on colon and breast cancers

Antibacterial Derivatives



ANALYSIS

Various Compounds that are derived from marine algae recently during various researches which have got confirmation in targetting various resistant diseases:-

1. Trentepohlia umbrina an alga in methanol extract has potential against the Klebsiella pneumonia, Aspergillus niger, and Trichoderma barsianum along with the fungal pathogens.
2. Polysaccharides extracted from the red seaweed Pterocladia capillacea and brown seaweed Dictyopteris membranacea using hot and cold water is reported to inhibit the growth of Bacillus cereus, Staphylococcus aureus, Pseudomonas fluorescens and Escherichia coli
3. A sulfated polysaccharide isolated from Gracilaria lemaneiformis exhibited remarkable anti-cancer and immunomodulatory activities against transplanted H22 hepatoma cells.
4. oligo-porphyrin, the acid hydrolysis product of porphyrin, has the potential to prevent and treat various pathologies such as Parkinson's disease and acute renal failure.

KEY FINDINGS

Marine algae find its uses in various diseases like microbial disease, cancer, fungal disease etc.

1. As antimicrobial, Various compounds like fatty acids, peptides, polysaccharides are used to prepare antibiotics, surface sanitisers etc.
2. As anticancer, Various types of algae like green algae, red algae, brown algae are used to treat colon cancer and breast cancer.
3. Various types of red algae are used in treatment of heart disease also. ex- porphyrin, carrageenan and agar.

CONCLUSION

It can be concluded that various marine sources can be used as a lead to treat various resistant disease like microbial diseases. In marine sources most commonly used are algae and its various type which are having compounds needed for treatment of various resistant disease present in them.

Therefore, in future various research studies need to be focused on finding out other molecules present in these marine sources which can be used to cure mankind in future as these have minimal side effects rather than synthetic drugs.

REFERENCES

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