



**DYACOS**  
Chitosan oligosaccharide

# Chitosan Oligosaccharide (COS)

**DYACOS** concentrated chitosan oligosaccharides (COS) are naturally isolated from marine organisms using eco-friendly organic processes.

Chitosan oligosaccharides stimulate the enzymes and content of secondary metabolites and exhibit antimicrobial activities that act as biopesticides, preventing proliferation of pathogens and preserve crop yield and quality

**Chitosan and its oligosaccharides, a promising option for sustainable crop production-** [Khan Bilal Mukhtar Ahmed](#)  
[M. Masroor A.Khan Husna Siddiqui Ajmat Jahan](#)



# Chitosan Oligosaccharide (COS)



Chitosan oligosaccharides (COS) have been reported to possess antifungal and antibacterial activity and have shown to be effective against seedborne pathogens when applied as seed treatments. They can form physical barriers (films) around seed surfaces, and can support other antimicrobial compounds. Chitosan oligosaccharides behave as resistance elicitors inducing both local and systemic plant defence responses.

Chitosan oligosaccharides (COS) cultivate beneficial bacteria like actinomycetes which secrete chitinase which degrade nematode bodies and eggs. These secretions also inhibit harmful bacteria like Pythium, Phytophthora, Rhizoctonia and Fusarium. Thereby reducing the limiting infestations that affect young seedlings.



# £100 BILLION GLOBAL NEMATODE PROBLEM



Consumers are demanding reductions in the use of pesticides, and regulatory authorities are significantly restricting the use of chemicals in response to public demand. Changes to historic practices combined with restrictive application rates has resulted in resistant nematode populations.



Reports have estimated that the impact of soil borne nematodes on global crop production has exceeded a staggering £100 billion of lost crops per year. A recent survey suggests that global crop losses, as a result of nematodes are at least 12% of total potential yield.



Banana

20% Average Yield Loss



Potato

12% Average Yield Loss



Rice

10% Average Yield Loss



Corn

10% Average Yield Loss



Peanuts

12% Average Yield Loss



Cotton

11% Average Yield Loss



Soy Beans

11% Average Yield Loss



Vegetables

20% Average Yield Loss



Beets

11% Average Yield Loss



Grapes

13% Average Yield Loss



Pineapple

15% Average Yield Loss



Coffee Beans

15% Average Yield Loss

Source: Transparency Market Research, TMR February 2018

# Chitosan Oligosaccharide (COS)



Chitosan oligosaccharides help plant root growth and development by promoting the division of root cells and increasing the functionality of capillary roots, while reducing the number of dead and decayed roots.

When crops are exposed to nematode damage during the vegetable growth or fruiting period, treatment via irrigation of the root zone, may restore the plants vitality and revive normal growth, thereby minimising the damage caused by nematode infestation.

Chitosan oligosaccharides help to promote the division of root cells, stimulate a stronger root system and enhance resistance to drought. They also aid crop recovery from physical damage, promote strong seedlings and improve marketable yield.





**Chitosan oligosaccharides (COS): 20%**

**pH: 5-0 – 6.0**

### **Foliar application**

- 200 ml in 200 litres of water per hectare
- Apply every 1-2 weeks in affected areas

### **Root watering and drip irrigation**

- Add 10 ml per 10 L of water
- Irrigate via drench or drip

