

Plant-based colors for plant-based seafood

Theresa Wilms, Technical Sales Manager at GNT Group, explains how colors made from fruit, vegetables, and plants can help plant-based seafood appeal to modern consumers

Plant-based seafood remains a niche category, but it is now beginning to gather increasing momentum. Mintel analysis shows there has been a spike in global launches in recent years, with sustainability, concerns about overfishing, and high mercury levels in fish seen as the key drivers.¹

There are many more reasons for consumers to choose seafood alternatives, including ethics and allergies. To convince shoppers to make a purchase, though, it is essential that products have the right sensory attributes.

Appearance is a key part of that. When color is used to accurately mimic traditional seafood

products, it plays an essential role in setting up positive first impressions on product quality and flavor.

If it fails to match up, it can have the opposite effect. A 2024 study on fish analogs showed that consumers considered canned tuna alternatives to look unappealing when they had a beige or yellow color rather than the pinkish hue they expect to see.²

Plant-based colors

An FMCG Gurus survey has shown that 84% of consumers worldwide consider the color and appearance of plant-based products to be important.³ At the same time, the survey revealed

that the choice of coloring ingredient can also be hugely important in ensuring product acceptance. It found that:

- 79% think it is important for plant-based food and drink to be made with well-known/familiar ingredients
- 68% check ingredient lists most or all of the time when buying plant-based food and drink

Spices are a clean-label solution that have traditionally been used both to add flavor and to impart color to plant-based alternatives. However, their impact on flavor limits the possibilities to achieve the desired visual appearance.

Made from non-GMO fruit, vegetables, and plants, our EXBERRY® portfolio can deliver colors



from across the rainbow with minimal impact on flavor. Crucially, they also support natural ingredient declarations. In the UK and EU, a red shade might be listed on the label as “radish and carrot concentrate.”

Technical considerations

Colors made from fruits, vegetables, and plants are not a plug-and-play solution. They contain pigments that have a wide variety of color hues as well as varying technical characteristics such as their temperature and pH sensitivities. As a result, there are many considerations to bear in mind to ensure optimal results. Selecting the right options will depend on the base product as well as the desired functionality.

Most fish alternatives have a pH level between 5 and 7, and red concentrates containing anthocyanin pigments can shift to more of a bluish, purple shade at that level. Fat can also have a big impact. In a product such as a plant-based salmon steak, an orange color made from carrot and apple may have a lighter shade in a 15% fat base compared to one without any fat. Every base is different, too. A fish analog might use pea, soya, or bean protein and that can significantly influence the overall shade.

There are also three main types of processing to consider when creating seafood alternatives. Mincing and mixing is used for plant-based salmon steaks, canned tuna, and shrimp. Emulsification can be used for products such as smoked salmon alternatives. High-moisture texturization is used to create products including vegan tuna chunks. The differences in these processing methods can mean significant variations in heating requirements during manufacturing and they can also cause changes to pH values.

These issues can make using plant-based colors hugely complicated for manufacturers, so working with a knowledgeable color supplier is essential. At GNT, we've been working with plant-based meat and fish for many years and have been able to devise solutions to all the most common color challenges manufacturers face.

Our experts can provide full support throughout the product development process, with services including color selection and matching, formulation advice, and stability testing as well as help with upscaling and regulation.

Realistic results

As plant-based seafood becomes more popular, the range of products on the market is expanding rapidly. Tuna, salmon and breaded fish substitutes dominate the market, but 2024

launches have included vegan-friendly alternatives to cuttlefish, goby, gravadlax, caviar, and abalone.

EXBERRY® colors can provide the ideal solution for almost any seafood alternative. Our portfolio includes a wide range of product formats for different application requirements, allowing manufacturers to closely replicate the appearance of everything from canned tuna to gravadlax to caviar. It can also be used to impart colors of all types to extrudates, seasoning blends, binding agents, coatings, and more for both plant-based and traditional seafood products.

Our plant-based colors offer perfect synergy with the plant-based category. Delivering realistic results alongside natural ingredient declarations, EXBERRY® is a versatile solution that can help you unleash plant-based seafood's full potential.

References:

- 1 Mintel 'Ingredient watch: plant-based seafood' (March 2023)
- 2 Appliani, M. et al. 'Plant-based fish analogues vs. fish: Assessment of consumer perception, acceptance, and attitudes' Food Quality and Preference (February 2025) (<https://www.sciencedirect.com/science/article/pii/S0950329324002313>)
- 3 FMCG Gurus 'Custom survey – Global and Regional – Meat & Plant-Based Protein' (Q2 2022)



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