Hydrocolloids and Consumers – A Pantry Friendly Strategy

By Dennis Seisun

Ask a consumer (non-food scientist), "Do you like hydrocolloids?" and the answer is likely to be "Do I like what???". Then ask, "What about starch, gelatin, and pectin?", and the answer is likely to be, "Oh, those…., Yeah, sure, they're fine, no problem". Unless, of course, the consumer is vegetarian, in which case the answer would be, "Starch and pectin OK, but gelatin is not for me." Gelatin, pectin, and starch are typically what we would call "Pantry Friendly Hydrocolloids". Consumers are likely to have them in their pantry and use them in home cooking. So, where does that leave the likes of xanthan, gellan, CMC, MC/HPMC, and so many other less well-known hydrocolloids? In the dark and subject to suspicion.

Making them pantry-friendly is a strategy that suppliers and users of these hydrocolloids should adopt. For the longest time, the food industry has paid little attention to consumer opinions and concerns and is now suffering the consequences. The attitude of the food industry has generally been, "Supply it and they will eat it". The scenario has changed dramatically. Consumers are far more aware and more informed, often misinformed, about their food, particularly processed food. First, let's explore what hydrocolloids are, where they come from, and why they are used. Then we'll consider how and where consumers get their information and make decisions. Lastly, what can the industry do, if anything, to correct or better inform consumers about this unique and essential set of additives in the food industry.

Agar
Alginates (incl. PGA)
Acacia (aka Gum Arabic)
Carrageenan
Cellulosics (CMC, MC/HPMC and MCC)
Gelatin
Gellan
Guar
Locust Bean Gum (aka carob bean gum)
Pectin
Starch
Tara
Xanthan

Hydrocolloids are essentially texturizing agents and stabilizers in food formulations. For the most part, they help to viscosify, suspend, or gel, but also have other useful properties. The list of hydrocolloids that IMR has been surveying over the last 45 years includes the following:

This list is by no means exhaustive, and there are several other, less widely used hydrocolloids such as tragacanth, karaya, curdlan, and konjac, to name a few. For each hydrocolloid listed above, there are dozens, if not hundreds, of differentiated sub-categories. Starches, for example, can be derived from corn, wheat, potato, rice, or tapioca. They can be native, chemically modified, or physically modified with dozens of subcategories of each. Pectin can be produced from the peel of lemon, lime, oranges, or apple pomace. Most hydrocolloids can be further differentiated by organic, GMO-free, fair trade, kosher, halal, etc. Consumers trying to understand the origins of the ingredients they eat have every right to be confused.

Geographically, the source of these hydrocolloid raw materials covers the globe. Seaweeds from Norway, Chile, Morocco, the Philippines, Indonesia, Tanzania, South Africa, New Zealand, and several other countries are used to produce agar, alginates, or carrageenan. Sudan is the major source of gum acacia, but the entire sub-Saharan belt of Africa, from East to West, is also a source. Food cellulosics are produced from specialty-grade processed cellulose derived from trees or cotton, which are grown worldwide. Food-grade gelatin, the only hydrocolloid of animal origin, is primarily produced from beef hide or pork skin, though other sources are also used. Gellan gum, curdlan, and xanthan gum are produced through fermentation in large tanks. Guar, tara, and locust bean gum are seed extracts from crops grown in India, Peru, and Morocco, respectively. Pectin is produced from the peels of lemon and lime, mostly grown in Argentina and Mexico. Orange pectin from

Brazilian crops is gaining traction. Apple pomace is also a source. Finally, starch, the most widely used hydrocolloid by volume and value, is produced from crops grown worldwide. Consumers with "buy local" in mind would be hard-pressed to apply it to hydrocolloids.

Next, consider the "why hydrocolloids are used". Water is an intrinsic part of virtually any food formulation. Controlling the behavior of this water with other components in the formulation is the key to why hydrocolloids are ubiquitous. At the same time, food texture is an intangible property, especially when compared to color, flavor, or odor, which are more easily identifiable. Aside from "water control," hydrocolloids help to reduce cost, extend shelf life, and often prevent unsightly syneresis.

In search of a clean label, there are ongoing efforts to remove as many additives as possible, including hydrocolloids. Consumers' demands and concerns, however, are often ill-founded and counterproductive. Nevertheless, "The Perception of the consumer is the reality of the producer," and producers have to deal with it. Removing hydrocolloids from a formulation is, of course, possible, but at a cost. The downside of no hydrocolloids would be multifaceted. Removing hydrocolloids would make a food less palatable. It would also make foods less shelf-stable,

leading to higher transportation costs and more waste. On the social level, there are millions of impoverished farmers, harvesters, and middlemen who survive through land or aquatic farming and other raw-material supply functions. Eliminating or reducing the use of hydrocolloids would have dire social consequences. Lastly, the visual appearance of many foods would suffer; think separation, settling, and syneresis, which many consumers might view as spoilage. Hydrocolloids eliminate or at least mitigate all of these defects.

What can the hydrocolloid industry do to improve the image of hydrocolloids in consumer minds? One strategy would be to address the source of misleading or biased information. Consumers are increasingly relying on phone apps that scan food barcodes and present highly simplified ratings, purportedly guiding them to better food choices. Unfortunately, many of these phone apps rely on fearmongering to drive up subscription levels. IMR has tried to communicate directly with one of the largest of these, but unfortunately, has essentially hit a brick wall. In any case, many of these phone apps give widely varying opinions of the same food and/or additives. More confusion for the consumer.

Traditionally, hydrocolloids have remained beneath the consumer radar screen. A "don't rock the boat approach" by hydrocolloid producers and users does not seem to have worked. The growing consumer visibility of hydrocolloids is more negative than positive. It's not too late to fight back with some positive messaging. A grassroots effort by hydrocolloid producers would be well advised. Social media influencers could be engaged. Advertising in non-industry media is a better way to reach consumers. Trade journals are read by food formulators who do not need convincing that hydrocolloids are fine. Recruiting an advertising agency that could develop a strategy is recommended. Funding for such efforts would best be handled by trade associations, which could spread the cost among beneficiaries.

Each hydrocolloid sector, seaweed extracts, seed gums, exudates, etc., has some strong positive messaging attributes that can be used to promote a good image.

All things from the "blue economy" generally have a positive connotation with consumers. Agar, alginates, and carrageenan are all seaweed-derived and employ hundreds of thousands in seaweed farming, harvesting, and packaging.

Gum acacia harvesting is one of the few remaining commercial activities in war-torn Sudan and neighboring countries. A large swath of the population relies on acacia for survival, not to mention that acacia trees are a critical element in stopping or slowing down desertification.

Each seed gum, guar, tara, and locust bean gum has a unique messaging element that could increase positive consumer perception. The tara tree is endemic to Peru, and tens of thousands of Peruvians survive from it. Similarly with the annual guar crop in India, except that literally hundreds of thousands are involved. The carob tree (source of locust bean gum) is so important

that it is considered part of Morocco's heritage (patrimoine), the world's largest home to carob trees. Other sources include Spain and other Mediterranean countries. The pod of the carob was prized already in the early days of Christianity and known as "St. John's Bread."

Cellulosics have a bad rap because of their chemical-sounding name. But consumers should know that cellulose is one of the most abundant materials in the plant kingdom, and virtually ALL fruit and vegetables contain cellulose. Consumers consume cellulosics daily at rates much higher than when used as a hydrocolloid.

Xanthan, gellan, and other biopolymers are produced through a process similar to that used to produce beer and wine: fermentation. It is one of the more sustainable and scalable processes.

Pectin hardly needs any introduction. Grandma had it in her pantry and made the jam enjoyed for generations. Consumers need little introduction, but reinforcing the citrus or apple origins could not hurt.

Last but not least, starch is probably the most pantry-friendly hydrocolloid. No household is likely to be without some in the pantry.

Familiarity is the first step to acceptance. For the hydrocolloids, which are less well known to consumers, efforts should be made to make them more familiar. Demonstration programs at food markets could be established. Taste tests and consumer-friendly explanations could be provided by college interns in food science. Academic credits could be obtained for such activities, which could be volunteer-based.

Of course, we realize that "Ideas are a dime a dozen." Putting them into practice is the real challenge. It needs the hydrocolloid industry to break out of its stabilized mentality and become more proactive in defending the image of its products.

IMR is doing what we can to defend and promote the image of hydrocolloids through our Hydrocolleague Tidbits, which reach thousands each week. Strategies will be discussed at the forthcoming global conference on hydrocolloids in Valencia, Spain April 26-28, 2026. Perhaps we will see you there. Registration is at www.hydrocolloid.com/conference.

Note: This article has been written and edited entirely by human effort. It is certified (by IMR) 100% AI free. Any errors or omissions are purely human. Your comments (human please) are very welcome fmt

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For more information:
www.hydrocolloid.com/conference