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Article

Behind the Green Promise: Eco-Innovation or Commercial Illusion?

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Abstract: Plastic pollution is getting worse, and interest in environmentally friendly alternatives is growing. Biodegradable packaging may seem like the 'best option' to solve the problem, but the reality is far from simple. Common materials such as PLA and PBS, for example, are labelled as 'environmentally friendly' and 'sustainable', but they often require special conditions in industrial composting before they can be fully degraded. If they are simply thrown in the ordinary rubbish bin, buried in the ground or floated into the sea, they may not even 'disappear' as advertised. In some cases, they don't even degrade as well as traditional plastics. To complicate matters even further, to make these materials stronger and more practical, many products add other chemicals, with the result that the degradation process may release microplastics or hazardous substances. The article also talks about an interesting but dangerous psychological phenomenon - 'moral substitution': people feel that they have done their bit for the environment by buying products labelled 'green'. People feel that they have done their part to protect the environment by buying products labelled as 'green', and they get the psychological satisfaction of being a 'good citizen', while ignoring whether these products are really environmentally friendly. Actually new materials such as PHA can show better degradability, but due to high costs and lack of infrastructure, it is difficult to spread for the time being. To make biodegradable packaging really work, it is not enough to rely on consumer choice, but also need technological advances, policy supervision, the integrity of enterprises to promote and the public's more rational judgement, we work together, environmental protection will not just stay on the label.

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1. Introduction

Plastic pollution has certainly become a growing headache in recent years. The latest research finding that microplastics are not only found in marine organisms, but even more so in our human bloodstream with microplastic residues, is particularly worrying. Scientists are warning us that if we don't take proactive action, there could be irreversible effects on ecosystems and human health in the future. In the face of this problem, more and more companies are promoting biodegradable packaging as an ideal alternative to traditional plastics and as a symbol of 'green', 'eco-friendly' and 'sustainable development'. 'green', "eco-friendly" and "sustainable". However, is it really that simple?

Biodegradable materials have their limitations because they are made from materials like PLA (polylactic acid), PBS (polybutylene succinate) and other materials that microorganisms can 'digest' in to water, carbon dioxide and biomass in an ideal environment. This may seem like an ideal solution for the environment, but there is no doubt it is a more complicated reality. It is often feared that this level of 'ideal degradation' can only happen during industrial composting conditions (ie. prime environments with temperatures (over 58 degrees Celsius), high humidity, and an abundance of microbes). This means in natural settings (such as landfills, soil or oceans) that these conditions are hard to meet meaning these materials will not degrade any faster than advertised in practice and may perform no differently than conventional plastics, or as being biodegradable, might even be more durable.

Furthermore, biodegradable plastics have limitations with their physical properties. For example, the lack of strength, poor water resistance, and limited effect on food preservation make it difficult to replace traditional plastics in food, medical and other high-performance requirements of the packaging field. In addition, some of the products claimed to be 'degradable' may release microplastics or harmful chemicals during the degradation process, which poses potential new risks to the ecosystem and may, on the contrary, result in 'new types of pollution'.

2. Methods

Drawing from socio-materiality frameworks this exploratory study weaves a qualitative and critical discourse analysis into the issues of socio psych structures and market practices which in turn are put in the face of regressive regulatory issues that present bio degradable packaging as a typical techno fix. We also look at a synthesis of academic research, media reports and corporate info which in turn we use to open up the gap between what the public thinks and what is the scientific truth.

3. Results

Figures and tables

Figure 1

BEHIND THE GREEN PROMISE: ECOLOGICAL INNOVATION OR BUSINESS ILLUSION?

4. Discussion

Despite the technical and environmental limitations of biodegradable materials, they are often packaged with labels such as 'green', 'environmentally friendly', 'sustainable', etc., to create a highly idealized image in the publicity and marketing process. However, in the promotion and marketing process, companies often package them with labels such as 'green', 'eco-friendly' and 'sustainable' to create a highly idealized image. This strategy triggers consumers' ethical consumption tendency, making people believe that choosing these products is contributing to environmental protection, and psychologically gaining the satisfaction of being a "good citizen". Younger consumers, in particular, are more likely to pay a higher premium for the 'green' label (Kuncoro & Kusumawati, 2021). However, many consumers lack understanding of the true principles and degradation conditions of biodegradable packaging, and have the misconception that 'buying green equals environmentally friendly'. Enterprises often intentionally avoid specifying the degradation conditions, and even confuse the concepts of 'degradable' and 'compostable' to make consumers believe that these packages can be decomposed in a short period of time in the natural environment, which leads to the wrong 'eco-hero mentality'. 'Environmental hero mentality'. In fact, this 'environmental hero mentality' hides a psychological comfort mechanism. Consumers get moral satisfaction and psychological recognition by purchasing products with 'green' labels, a psychological mechanism known in behavioral economics as substitutive behavioral satisfaction - that is, through simple consumption behaviors. This psychological mechanism is known as substitutive behavior satisfaction in behavioral economics - that is, the simple act of consumption replaces the really complex action of environmental protection, thus obtaining emotional relief. This is particularly evident in the social media era, where many people have established a visible environmental identity through behaviors such as 'posting green shopping bags' and 'taking pictures of plastic-free coffee cups', further reinforcing the psychological impression that consumption is the same as being environmentally friendly. At the same time, cultural and social environments have also contributed to the strengthening of this psychological mechanism. For example, in Western countries, green consumption has long been included in the category of 'ethical consumption' and has become part of social ethics. In some Asian countries,

such as China and Malaysia, green consumption is more associated with ‘fashion’ and ‘statuses, and is a way for young people to show their attitudes and values. As a result, environmental behavior has been symbolized and labelled, gradually moving away from its original social responsibility and becoming a tool for self-expression. Especially among the ‘Generation Z’ group, environmental protection is no longer just an action, but also a ‘persona’ - they want to be seen as environmentally conscious and ‘responsible citizens. ‘They want to be seen as environmentally conscious and responsible citizens, even if this responsibility is only achieved by purchasing a cup with ‘biodegradable ’printed on it.

The problem, however, is that this emotional satisfaction often overshadows a dispassionate judgement of the actual environmental benefits. Once consumers become accustomed to ‘green consumption’ as a substitute for an in-depth understanding of environmental protection mechanisms, they are prone to fall into the misconception of ‘moral substitution’, mistakenly believing that the act of consumption itself represents the entirety of environmental action. This kind of simplistic thinking not only weakens the public’s attention to the technical details of environmental protection, such as whether the packaging is truly biodegradable, how fast it breaks down in the natural environment, whether there are any harmful residues, and whether there is a matching collection and treatment system, but also leads to the neglect of more complex systemic issues. When these truths are revealed - for example, when the media reveals that a brand’s so-called ‘biodegradable’ packaging does not break down under natural conditions, or that it is actually being disposed of in the ordinary waste disposal system, just like ordinary plastic - consumers tend to have a strong psychological impact. Consumers are often left with a strong psychological gap. This gap not only comes from the disappointment of the individual ‘environmental efforts’ failed, but also stems from the ‘lack of integrity’ of the corporate anger, and then easily evolved into the whole green consumer concept of questioning and boycotting. Even more serious is that this psychological mechanism formed by misunderstanding, will in a subtle way to delay the occurrence of truly effective environmental behavior. Consumers ‘think they have done their part’, while companies have successfully circumvented their institutional and environmental obligations, which constitutes a double mismatch of perception and responsibility.

To break this mismatch, the key lies in building a transparent information dissemination mechanism and an effective social monitoring system. On the one hand,

the government and regulatory bodies should strengthen the auditing and regulation of market behaviors such as environmental labelling and green publicity to eliminate ambiguous expressions and false environmental promises. On the other hand, through public education and media communication, consumers' knowledge of the basic principles, application conditions and environmental impacts of biodegradable technologies should be enhanced, so that they can have stronger judgement in their consumption decisions. Only when the public realizes that true environmental protection goes beyond the act of consumption itself, and encompasses an understanding of the full life cycle of materials, supervision of corporate behavior, and participation in the system's operating mechanism, can green consumption be truly transformed into a force for green transformation.

In fact, environmental protection is not a unilateral behavior of consumers, but a systematic project covering the government, enterprises and the public. However, the reality is that many companies use green marketing tools to shift the responsibility for environmental protection to consumers, while they benefit from the brand value and profit level. For example, some packages are only labelled as 'degradable' without stating that they need to be processed in industrial composting facilities, and when they actually enter the landfill, they have no degradation effect and become a new source of pollution instead.

In addition, green labelling has been abused in commercial operations, and has become a justifiable reason for enterprises to increase prices. According to statistics, the cost of biodegradable plastics is generally 20-30% higher than that of conventional plastics (Bailey et al., 2024). Taking the 'Activia' yoghurt cups launched by Danone Deutschland as an example, although the cups are made of PLA, German environmental organizations have pointed out that they are not recyclable or reusable, and that there is no substantial improvement in environmental benefits compared to the old packaging, and they may even be less environmentally friendly. This will form the trap of green consumerism. Enterprises over-exaggerating the environmental image of green packaging may instead fall into the trap of green consumerism. The promotion of biodegradable packaging does not fundamentally reduce the use of disposable packaging, but rather promotes the false logic of 'the more you buy, the more environmentally friendly', encouraging more consumption and more packaging. This misuse of the concept of environmental protection has not only failed to alleviate the problem of plastic pollution, but has further exacerbated its complexity. When

consumers feel they have been deceived, a collapse of trust will not be limited to specific brands, it has potential to spread to the entire green consumption sector. Once environmental protection is viewed as just an instrument, and for profit, to circumvent emotions people use when making a decision, the social agreement around developing sustainable development will be threatened. Some that do not value environmental protection may see this as an opportunity to justify their own non-environmental behavior, and use it as a way to further functionally embed non-environmental behavior.

5. Conclusion

Nevertheless, this process may also inspire some consumers to consider more rational and sustainable options. We see some consumers prioritizing reusable packaging and new forms of consumption, for example, no-packaging shops, and are realizing that true environmental sustainability is not determined by the color of the label, but by sustainable, practical use of the product.

On the road from ‘gimmick’ to ‘solution’, biodegradable packaging faces many challenges but is not without merit. Nowadays, with the continuous progress of science and technology, new materials such as PHA (polyhydroxyalkanoate) have shown stronger degradability and environmental friendliness. According to studies, PHA can be completely degraded to harmless substances in natural environments or industrial composting conditions, reducing pollution by more than 50 per cent (Stublić et al., 2024). However, these materials are still facing bottlenecks such as high production costs and difficulties in scale-up, and are not yet ready for large-scale commercial promotion.

Therefore, to promote the real role of biodegradable packaging, it is necessary to rely on the synergistic development of technology, policy and society through multiple paths: first, strengthen the labelling regulations: all biodegradable packaging should be clearly marked with the applicable degradation environment (e.g. ‘industrial composting only’), so as to prevent enterprises from misleading consumers with vague language; and second, severely punish the false propaganda. Secondly, severely punish false propaganda: punish companies that fail to indicate degradation conditions or make false environmental promises, and establish an honest mechanism for green marketing; thirdly, improve infrastructure: the government need to invest more in the

construction of rubbish sorting systems and composting facilities, so as to create a realistic basis for the actual degradation of biodegradable materials; fourthly, strengthen environmental education: through popularization of science and public education, enhance consumers' knowledge of packaging materials and promote rational consumption; Fifthly, promote whole life cycle management: enterprises should not only use environmentally friendly materials, but also participate in the closed-loop management of the whole life cycle of packaging, and form a closed loop of responsibility from the source to the recycling system.

Is biodegradable packaging the 'savior' of plastic pollution or a 'marketing mirage'? Possibly there is no clear answer. The real value of biodegradable packaging is not the material itself, but how it is highlighted, accessed, used and managed by human society. If companies see environmental labelling as a tool for manipulating emotional consumption rather than a means of contributing to sustainable development, then biodegradable packaging will simply replace the old 'conscience tax ' and be a representation of psychological comfort, rather than behavior that drives environmental protection.

However, if biodegradable packaging can be incorporated into a scientific, systematic and synergistic sustainable development framework under the joint promotion of policy regulation, technological innovation, consumer education and corporate responsibility, it may still become an important part of the solution to the plastic pollution problem. Environmental protection is never a label or a slogan, but a continuous collective action. Only through institutional construction, transparent communication, public participation and corporate responsibility can we truly make 'green packaging ' more than just a color and become a practical force for shaping a better future for the planet.

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References

[1] Bugnicourt E, Cinelli P, Lazzeri A, Alvarez VA. Polyhydroxyalkanoate (PHA): review of synthesis, characteristics, processing and potential applications in packaging. *Express Polym Lett*. 2014;8(11):791-808. doi:10.3144/expresspolymlett.2014.82

[2] Bailey J, Bailey W, Baily I. Cost comparison of biodegradable materials: what you should know. *Planet Pristine*. April 18, 2024. Accessed June 20, 2025. https://planetpristine.com/sustainable/products/cost-comparison-of-biodegradable-materials/

[3] Chanda TC. Plastic pollution: causes, effects, and solutions. *ResearchGate*. March 2024. Accessed June 20, 2025. https://www.researchgate.net/publication/379382008_Plastic_Pollution_Causes_Effects_and_Solutions

[4] Hartmann J. Danone: follow-up: end to legal dispute over advertisement of PLA Yogurt Tub / compromise reached with German environmental group. *Plasteurope*. Accessed June 20, 2025. https://www.plasteurope.com/news/DANONE_t220875/

[5] GlobalScientificJournal. Consumer willingness to pay a premium for green packaging. *Glob Sci J*. December 2024. Accessed June 20, 2025. http://www.globalscientificjournal.com/researchpaper/Consumer_Willingness_to_Pay_a_Premium_for_Green_Packaging.pdf

[6] Nature. Biodegradable plastics: a solution or just another problem? *Nature*. 2019;573(7775):256-258. doi:10.1038/d41586-019-02696-1

[7] Park H, He H, Yan X, Liu X, Scrutton NS, Chen G. PHA is not just a bioplastic! *Biotechnol Adv*. 2024:108320. doi:10.1016/j.biotechadv.2024.108320

[8] Stublić K, Ranilović J, Ocelić Bulatović V, Kučić Grgić D. Advancing sustainability: utilizing bacterial polyhydroxyalkanoate for food packaging. *Processes*. 2024;12(9):1886. doi:10.3390/pr12091886