

Market Research and Marketing Plan for Black Garlic

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Abstract: *The article outlines the nutritional value, antibacterial and anti-inflammatory properties, immune-boosting effects, prevention of cardiovascular and cerebrovascular diseases, anti-aging benefits, and the ability to relieve menopausal fatigue, along with other biological functions of black garlic. It highlights the beneficial impacts of black garlic as a health food on the human body. Through the distribution and collection of questionnaires and subsequent analysis of the statistical results, a marketing plan for black garlic was developed.*

Keywords: Black garlic; Nutritional value; Nutritional components; Marketing plan.

1. INTRODUCTION

Black garlic is produced from fresh raw garlic through advanced biological fermentation techniques. The garlic, with its skin intact, is placed in a fermentation chamber maintained at high temperature and high humidity for 1-2 months, allowing it to naturally transform into black garlic. As a result of this fermentation process, the garlic cloves turn black, hence the name. This method not only preserves the original components and benefits of raw garlic but also amplifies its antioxidant and anti-acidification properties by several multiples. Additionally, it converts a substantial amount of the garlic's proteins into 18 essential amino acids that are easily absorbed by the body. This significantly boosts the immune system, reduces fatigue, and promotes overall health. Moreover, black garlic has a pleasant sweet and tangy flavor, does not leave a garlic odor after consumption, does not cause internal heat, and is an excellent health food.

2. NUTRITIONAL CONTENT OF BLACK GARLIC

Black garlic has extremely high nutritional value, as shown in Table 1.

Table 1: Nutritional Content of Black Garlic and Raw Garlic

Component	Black Garlic (per 100g)	Raw Garlic (per 100g)
Moisture	43.6g	63.8g
Total Sugars	41.4g	7.2g
Protein	10.4g	5.2g
Fat	5.1g	0.2g
Potassium	682mg	302mg
Zinc	1.3mg	0.88mg
Sodium	36mg	19.6mg
Magnesium	52mg	21mg
Iron	2.1mg	1.3mg
Calcium	13mg	39mg
Ash	2.3g	1.1g
VB1	0.55mg	0.29mg
VB2	0.126mg	0.06mg
Crude Fiber	1.2g	1.1g

Analysis of Table 1 underscores the striking disparity in the nutritional profiles of black garlic and regular garlic, each per 100 grams. Notably, black garlic demonstrates a marked reduction in moisture content compared to its conventional counterpart, accompanied by a substantial increase in trace elements. Furthermore, the protein, sugar, and vitamin concentrations in black garlic exceed those found in regular garlic by at least twofold. This substantial divergence suggests that black garlic is not only a nutritional powerhouse but also potentially superior in its capacity to bolster bodily functions. With its enriched composition of essential nutrients, black garlic presents a

compelling option for individuals seeking to optimize their dietary intake for improved health and vitality.

3. BIOLOGICAL FUNCTIONS OF BLACK GARLIC

Allicin, alternatively known as allitridin, serves as the primary bioactive compound in garlic, presenting notable therapeutic and preventive properties against specific ailments. The distinctive nutritional and chemical makeup of black garlic imbues it with biological functionalities that set it apart from conventional garlic. Presently, the principal biological impacts of black garlic encompass the following domains:

3.1 Antibacterial and Anti-inflammatory Effects

Allicin and propyl sulfide, two potent components found in black garlic, serve as the cornerstone of its remarkable antibacterial prowess. These compounds have been extensively studied and have demonstrated their ability to combat a diverse array of viruses and pathogenic microorganisms. Through rigorous scientific inquiry, they've exhibited efficacy in neutralizing dozens of viral strains and various harmful pathogens. In laboratory settings, the volatile substances, extracts, and allicin extracted from black garlic have showcased prominent inhibitory or bactericidal effects against several strains of pathogenic bacteria. Notably, allicin, with its potent bactericidal properties, has been observed to target a wide spectrum of pathogenic microorganisms. Among these are notable viruses such as the meningococcal virus, influenza virus, Japanese encephalitis virus, and hepatitis virus. This comprehensive antibacterial action underscores black garlic's role not only as a culinary delight but also as a potent medicinal agent. Its multifaceted benefits extend beyond mere flavor enhancement, encompassing significant therapeutic potential. By harnessing the antibacterial and anti-inflammatory properties of black garlic, it opens avenues for novel approaches to combating infectious diseases and promoting overall health and well-being.

3.2 Immune Function Enhancement

Allicin, a compound abundant in black garlic, exhibits remarkable effects on human lymphocytes by activating the functions of cell membranes composed primarily of glycolipids. Research indicates that as the concentration of allicin increases, there's a corresponding rise in the activity frequency of lymphocytes. This heightened activity not only enhances the permeability of cell membranes but also accelerates cellular metabolism. Consequently, individuals consuming black garlic experience a significant boost in vitality and immunity. Moreover, numerous studies have shed light on allicin's multifaceted impact on the immune system. It influences various aspects of immune response, including chemotaxis, phagocytosis, and the bactericidal capacity of neutrophils. The presence of lysine and serine in black garlic further contributes to reinforcing the body's defense mechanisms. Furthermore, black garlic's zinc content plays a pivotal role in hormone synthesis, thereby fortifying overall immunity. This synergistic interplay of compounds within black garlic leads to a profound enhancement of cellular immune function, humoral immune function, and nonspecific immune function. As a result, individuals incorporating black garlic into their diets may experience a comprehensive and sustained improvement in immune resilience against a myriad of pathogens and health challenges.

3.3 Preventing Cardiovascular and Cerebrovascular Diseases

"Black garlic" has earned the moniker "artery scavenger" among scientists, owing to compelling research findings. Studies have revealed that individuals who incorporate black garlic into their diets on a regular basis exhibit significantly lighter deposits along the walls of their blood vessels compared to those who abstain from its consumption. Allicin, a prominent compound found in black garlic, emerges as a potent agent in combating atherosclerosis, the condition characterized by the hardening and narrowing of arteries. Furthermore, the dietary fiber content in black garlic plays a pivotal role in this regard. It demonstrates an ability to chelate cholesterol, effectively impeding its absorption within the body. By doing so, black garlic contributes to the prevention and treatment of hypercholesterolemia and atherosclerosis, alongside various other cardiovascular ailments. Recent advancements in research have underscored the importance of magnesium in averting cardiovascular diseases, osteoporosis, and certain types of tumors. This essential mineral holds immense promise in promoting overall cardiovascular health, bolstering bone density, and exerting anti-cancer properties. As such, the inclusion of black garlic in one's diet not only offers a delectable culinary addition but also serves as a proactive measure in safeguarding against a spectrum of debilitating health conditions.

3.4 Anti-aging Effects

Black garlic boasts a diverse nutritional profile, abundant in proteins, fats, carbohydrates, vitamins, and an array of minerals. Its consumption is associated with the prevention of vascular aging, attributed to its rich antioxidant properties. Components such as black garlic itself, along with its water-soluble extracts, selenium-containing proteins, and selenium polysaccharides, demonstrate potent scavenging abilities against highly reactive oxygen species like hydroxyl and superoxide radicals, thereby conferring notable anti-aging effects. Allicin, a prominent compound in black garlic, exhibits a remarkable ability to interact with lipids, akin to the function of vitamin E, contributing to the prevention of atherosclerosis and counteracting the aging process. Furthermore, enzymes like alliinase and extracts from black garlic ethanol showcase discernible impacts in retarding the aging process, underscoring the multifaceted anti-aging potential of black garlic.

3.5 Black garlic can alleviate menopausal fatigue

Beyond the previously discussed biological functions, black garlic is also valued among women in Singapore for its potential in delaying the onset of menopause. This revered ingredient is rich in s-allyl cysteine and allicin, compounds known for their ability to catalyze the breakdown of nutrients within the body, converting them into heat energy while simultaneously exerting anti-aging effects. Through its synergy with vitamin B1, black garlic can enhance metabolic processes, fortify physical resilience, and alleviate the hallmark fatigue associated with the menopausal transition. Moreover, the presence of s-allyl cysteine in black garlic offers therapeutic benefits extending beyond menopausal concerns, as it has shown promise in addressing severe cold deficiency syndrome and mitigating symptoms of insomnia. Thus, black garlic emerges not only as a culinary delight but also as a natural remedy with multifaceted health-promoting properties.

4. MARKETING PLAN FOR BLACK GARLIC

Our approach to understanding the current market landscape for black garlic involved a comprehensive statistical analysis employing three distinct research methodologies. Firstly, we established a dedicated research team, which collaborated effectively to delineate tasks and responsibilities. This team embarked on a systematic and methodical journey of conducting classified surveys across various residential areas, with a particular focus on reaching out to middle-aged and elderly demographics. This approach allowed us to gather nuanced insights into consumption patterns, preferences, and perceptions regarding black garlic within different segments of the population. Secondly, we implemented extensive questionnaire surveys as a means to gather quantitative data from a wide-ranging audience. These questionnaires were disseminated extensively, both physically and digitally, to ensure a diverse and representative sample. By leveraging online platforms, we were able to capture responses from individuals across different age groups, thereby enriching our dataset and providing a more comprehensive understanding of consumer behavior and preferences towards black garlic. Drawing upon the wealth of data collected through these research endeavors, we proceeded to formulate a robust marketing plan. This plan is not merely based on anecdotal evidence but is grounded in empirical insights gleaned from rigorous data collection and analysis. By aligning our marketing strategies with the specific needs, preferences, and behaviors of our target demographic, we aim to position black garlic in a manner that resonates deeply with consumers, thereby maximizing its market penetration and fostering sustained growth in demand.

4.1 Market Status of Black Garlic

The survey findings reveal that 65.2% of respondents lack familiarity with black garlic, while only 20.6% are aware of it, with a mere 9.3% having actually consumed it, and a meager 4.9% expressing positive sentiments towards it. These statistics underscore the pressing need for promoting black garlic. However, the number of domestic enterprises engaged in its production remains relatively low. Presently, there are just over ten companies in China involved in black garlic production, primarily concentrated in regions such as Shandong, Henan, Liaoning, Jiangsu, and Zhejiang. Among these, Shandong boasts the largest contingent of black garlic producers, accounting for approximately one-third of the national total. This dominance can be attributed to Shandong Province's status as the primary garlic production hub, serving as the primary source of raw material for black garlic.

Despite its potential, the online presence of black garlic-related content remains limited. A search on major engines such as Baidu and Google yields only 14 relevant websites. Interestingly, 13 of these websites are operated by enterprises. Notably, these websites typically offer content in three to four languages, including Chinese, English, Japanese, and Korean, indicating significant interest in black garlic within Japan and South Korea. This trend suggests a burgeoning internationalization of Chinese black garlic companies and websites.

The visual identity of these websites often features green-themed logos presented in dynamic flash animations, prominently showcasing black garlic products. This not only underscores the products' eco-friendly attributes but also aims to evoke a sense of freshness and natural appeal among visitors. Furthermore, the technical requirements for these websites are relatively modest, with most utilizing internal links within their content columns. However, a notable drawback is the infrequent updating of website content, with much of the information dating back to 2011. Addressing this issue is crucial for maintaining relevance and ensuring accurate representation of the industry. Interestingly, only one website is dedicated solely to selling black garlic products, and it is not affiliated with any specific enterprise, suggesting potential opportunities for further market exploration and diversification.

4.2 Marketing Plan for Black Garlic

To expand the market share of black garlic, a comprehensive array of product promotion strategies has been implemented. These strategies encompass various approaches, with advertising marketing playing a central role:

(1) Development of Advertising Marketing Strategies: Advertising marketing involves the promotion of products through advertisements to directly encourage consumer purchases, broaden product sales, and amplify the company's visibility, reputation, and influence. Through strategic advertising, we aim to captivate consumer attention, spark interest in the product, disseminate crucial product information, and facilitate consumer transactions. When crafting advertisements for black garlic products, the creation of an imaginative space is paramount. Whether conveyed through television, newspapers, or other mediums, the inherent limitation of space necessitates inventive approaches. By stimulating the audience's imagination and fostering a space for creative interpretation, we expand the boundaries of advertising impact. A compelling advertisement strategically allows room for audience interpretation, subtly conveying the intended message. Incorporating timeless advertising slogans into concise segments aids in reinforcing brand recall through a fusion of visual and verbal cues.

Moreover, prudent management of advertising frequency is imperative. Excessive repetition risks inducing audience fatigue, while insufficient exposure may fail to leave a lasting impression. To navigate this challenge, alongside enhancing advertisement quality, diversification of advertising channels assumes significance. By dispersing advertisements across diverse media platforms, each with its unique characteristics, dissemination methods, and modes of expression, we elevate the perceived volume of advertisements without exacerbating audience fatigue. This multifaceted approach effectively reconciles the objective of augmenting promotional frequency with the imperative of averting audience saturation.

(2) Developing effective viral marketing strategies involves leveraging the power of word-of-mouth spread by users to rapidly disseminate information across the internet, akin to the transmission of a virus. Common tools for viral marketing encompass instant messaging platforms like QQ, email, blogs, and forums.

One approach is to harness the potential of traditional Chinese festivals. By sending festive blessings to friends via platforms such as QQ, MSN, or email, along with product web addresses or captivating product images, positive marketing outcomes can be achieved. Festivals evoke a sense of joy and camaraderie, prompting individuals to share blessings with others, thereby amplifying the marketing reach. Another tactic involves crafting visually appealing webpages or sharing engaging jokes with friends, complemented by images showcasing black garlic products. This encourages recipients to share the content with their own networks, facilitating further dissemination. Furthermore, capitalizing on the inclination of email users to forward entertaining content, such as intriguing pictures or interactive Flash games, can serve as an effective distribution mechanism. As these items are passed along from person to person, a snowball effect ensues, rapidly expanding the audience reach. Integrating the product into these shared materials enhances brand visibility and fosters product awareness. By strategically incorporating black garlic products into viral marketing campaigns, businesses can capitalize on the inherent viral nature of online platforms to significantly amplify their marketing efforts and achieve widespread exposure within

a short span of time..

4.3 Marketing Objectives

In the competitive landscape of the health food industry, black garlic stands out among its counterparts with its unique array of health benefits. While various health foods vie for consumer attention, black garlic distinguishes itself by not only promoting general well-being but also offering preventative and therapeutic support against prevalent diseases like cardiovascular ailments and diabetes. Additionally, its efficacy in alleviating menopausal fatigue represents a distinct advantage over many other health products in the market, which primarily focus on enhancing overall health without specifically targeting disease management or symptom relief. What sets black garlic apart is its multifaceted approach to health maintenance and improvement. Unlike some health products that solely aim to supplement the body's nutritional needs, black garlic's medicinal properties extend beyond mere nourishment. Its active compounds, such as allicin, exhibit remarkable preventive and therapeutic effects against various ailments, making it a valuable addition to one's daily regimen for holistic health care. Moreover, by strategically targeting middle-aged and elderly demographics through tailored marketing campaigns and distribution channels, the demand for black garlic can be significantly expanded. This demographic segment, which often prioritizes health and wellness, presents a ripe opportunity for increasing awareness and adoption of black garlic products. By tapping into this demographic's preferences and purchasing behaviors, the sales of black garlic can experience exponential growth, solidifying its position as a powerhouse in the health food industry. In essence, black garlic's ability to offer both general health benefits and targeted disease management solutions positions it as a formidable contender in the competitive landscape of health foods. Through strategic marketing efforts and a focus on consumer education, black garlic can not only capture a larger market share but also carve out a distinct niche for itself as a potent ally in the pursuit of overall well-being and longevity.

5. CONCLUSION

Following fermentation and processing, garlic undergoes a transformative change, emerging as black garlic with significantly enriched nutritional content. This metamorphosis positions black garlic as a versatile health food with broad applicability across various industries, steadily garnering widespread attention. Market analysis reveals that while the current market share of black garlic remains modest, its potential for expansion is considerable. According to data compiled by industry experts, the demand for black garlic has shown exponential growth in recent years. For instance, in 2008, market demand reached 4 million bulbs, yet only 1 million bulbs were supplied. By 2009, demand surged to 11 million bulbs, outpacing the available supply of 4 million bulbs. Projections for 2010 anticipate demand soaring to 30 million bulbs, while actual supply lags significantly at less than 10 million bulbs. Looking ahead, it is estimated that by 2015, global demand for black garlic could surpass 800 million bulbs, equivalent to approximately 55,000 tons of garlic, thereby fostering an emerging market valued at over 50 billion RMB. These figures underscore the immense growth potential of black garlic in the future market landscape. Through the formulation and implementation of viable marketing strategies, black garlic stands poised to seamlessly integrate into consumers' daily routines, capitalizing on its nutritional benefits and versatile applications.

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