

PROVISIONING FOOD GIVEN BY VISITORS TO ALPHA-MALE LONG-TAILED MACAQUES AT RECREATION FOREST, ALL OF THEM ARE HALAL

MAKANAN DARI PENGUNJUNG YANG DIBERIKAN KEPADA JANTAN ALFA MONYET EKOR PANJANG DI TAMAN REKREASI, SEMUANYA HALAL

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ABSTRACT

The long-tailed macaque (*Macaca fascicularis* Raffles, 1821) is a non-human primate (NHP) species with social status in its group. *Macaca fascicularis* living in groups and social castes. Alpha males lead their group. Alpha males will have greater access to food than individuals with lower social castes. The content of feed eaten by animals, of course, will affect health. Various biological processes occur, from the food eaten by animals to affect the health of human life. If the food eaten is toxic, it will be hazardous to the animal's metabolism for life. According to a Muslim perspective, how much better food can be eaten is included in Halal products. Including, in this case, food ingredients for feed, if it comes from ingredients that are included in the halal category, this will provide animal welfare. This study seeks to explain how visitors' feed types (provisioning food) to alpha-male *Macaca fascicularis* at Mbah Agung Karangbanar Recreation Forest, Banyumas, Central Java, Indonesia. This study used behavioral coding to measure the frequency and quantity of eating behavior for ten days based on visitor feeding. The remainder of the provisioning food found is recorded as data on the type of provisioning food. Based on the study results, the alpha-male was noted to eat provisioning food such as peanuts, bananas, sweet potatoes, snacks, and foods mixed with soy sauce given by visitors. All of them are halal because they eat visitors every time they come to a tourist location. Alpha-male was noted to have no interest in the carcasses found, so they did not eat them.

Keywords: anthropogenic food, eating behavior, ethnoprimateology, human-primate interaction, *Macaca fascicularis*.

ABSTRAK

Kera ekor panjang (*Macaca fascicularis* Raffles, 1821) merupakan jenis primata non-manusia (NHP) yang berstatus sosial dalam kelompoknya. *Macaca fascicularis* hidup berkelompok dan kasta sosial, kelompoknya dipimpin oleh jantan alfa. Laki-laki alfa akan memiliki akses yang lebih besar ke makanan daripada individu dengan kasta sosial yang lebih rendah. Kandungan pakan yang dimakan hewan, tentunya akan mempengaruhi kesehatan. Berbagai proses biologi yang terjadi, dari makanan yang dimakan hewan hingga mempengaruhi kesehatan kehidupan manusia. Jika makanan yang dimakan beracun maka akan sangat berbahaya bagi metabolisme hewan tersebut seumur hidupnya. Alangkah baiknya, menurut perspektif Muslim, makanan yang bisa dimakan ini termasuk dalam kategori produk halal. Termasuk dalam hal ini bahan pangan untuk pakan, jika berasal dari bahan yang termasuk dalam kategori halal maka akan memberikan kesejahteraan bagi hewan. Penelitian ini berusaha menjelaskan bagaimana jenis pakan yang diberikan pengunjung kepada jantan alfa *Macaca fascicularis* di TWR Makam Mbah Agung Karangbanar, Banyumas, Jawa Tengah, Indonesia. Penelitian ini menggunakan metode pencatatan frekuensi dan kuantitas tingkah laku makan selama 10 hari berdasarkan pemberian makan pengunjung. Sisa pakan yang ditemukan dicatat sebagai data jenis makanan. Hasil penelitian, jantan alfa memakan kacang goreng, pisang, ubi jalar, makanan

ringan, dan makanan mengandung kecap yang diberikan pengunjung dan semuanya halal karena dimakan juga oleh pengunjung setiap datang ke lokasi wisata. Jantan alfa tak tertarik dengan bangkai yang ditemukan dan tak memakannya.

Kata kunci: etnoprimatologi, interaksi manusia-primata, *Macaca fascicularis*, pakan antropogenik, tingkah laku makan.

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INTRODUCTION

The long-tailed macaques (*Macaca fascicularis* Raffles, 1821) is a non-human primate (NHP) species that has the social caste status in its group (Gursky-Doyen & Supriatna 2010; Rowe & Myers 2016; Strier 2017). The habitat of *Macaca fascicularis* is very widespread in various regions, but the prior status issued by IUCN is vulnerable. Because *Macaca fascicularis* has a high level of tolerance to habitat change, it causes *Macaca fascicularis* to have an extensive distribution, including Bangladesh, Brunei, Cambodia, India (Nicobar Islands), Indonesia (Bali, Bangka, the Batu Islands, Bawean, Belitung, Java, Kalimantan Borneo, the Kangean Islands, Karimata, Karimunjawa, Lingga, Lombok, the Natuna Islands, Nias, Nusa Tenggara, the Riau Archipelago, Simeulue, Sumatra, Sumba, Sumbawa, and Timor), Lao PDR, Malaysia (including the Peninsula as well as Sabah and Sarawak Borneo), Myanmar (including the Mergui Archipelago), the Philippines (Balabac, Basilan, Cagayan Sulu, Culion, Jolo, Leyte, Luzon, Mindanao, Mindoro, Palawan, and Samar), Singapore, Thailand (including offshore islands), Timor-Leste and Viet Nam (Eudey *et al.*, 2020).

Long-tailed macaques are reported to live more frequently in the forest with the changes that occur. Among them are close to the local human habitat (Richard *et al.*, 1989; Tsuji & Ilham, 2021) and feeding when the *Macaca fascicularis* habitat is in a tourist park location, for example, which allows for more frequent interaction with humans (human-primate interaction) (Brotcorne *et al.*, 2020; Gruber *et al.*, 2019; Gursky-Doyen & Supriatna, 2010; Ilham *et al.*, 2017; Tsuji & Ilham, 2021). Gogoi & Das (2018) reported feeding a group of *Macaca fascicularis* at Navagraha Temple, Kamrup district of Assam, India, recorded daily for 2-4 hours, with the type of feeding given to visitors in the form of snacks, bananas, biscuits, cakes, chips. Similar reports were reported by Nila *et al.* (2014) with different locations, in Telaga Warna, Bogor, West Java, Indonesia, that the highest feeding rates for *Macaca fascicularis* were peanuts (19.8%), bananas (18.4%), biscuits (5%), snacks (4.1%), cakes (2%), chips (1.7%). The habit of visitors to provide food to certain animals, including *Macaca fascicularis*, has reasons to attract their attraction so that they approach humans or reasons such as humans who want to see it from a very close distance, to observe their behavior afterward (de Waal 2002). People who habit to giving food (also called anthropogenic food, provisioning food, artificial food) to primates also known as human-primate interaction in ethnoprimatology study (Hadi *et al.* 2007; Sengupta & Radhakrishna 2018).

Nasution and Rukayah (2018) reported the frequency of feeding adult male *Macaca fascicularis* at Cikakak Tourist Resort Wangon Banyumas (a Conservation Effort), Central Java, Indonesia ranks third in the percentage of their daily activity observed. Feeding is at a percentage of 10.24% for adult males every day (the highest is resting 47.28%, followed by walking 21.28%). Interestingly, there is no reported activity of looking for food for the adult male (0%), so that the food is eaten comes from visitors, not purely looking for food himself. Because *Macaca fascicularis* is a non-human primate (NHP) species living in groups and social castes, their group is led by alpha males. Alpha males will have greater access to food than individuals with lower social castes (Gursky-Doyen & Supriatna, 2010; Hidayat *et al.*, 2019; Koda *et al.*, 2012; Mardiah *et al.*, 2015; Rizaldi & Watanabe, 2008, 2010; Rowe & Myers, 2016).

The content of feed eaten by animals, of course, will affect health. Various biological processes occur, from the food eaten by animals to affect the health of human life (Sapkota *et al.*, 2007). If the food eaten is toxic, it will be hazardous to the animal's metabolism for life. The content of food eaten by animals will significantly determine the digestive conditions and even the health of the animals themselves. Diseases that arise from the contaminated animal feed with toxic substances will ultimately affect the environment (ve Meijer, 2007; Verstraete, 2013). According to a Muslim perspective, how much better food can be eaten is included in Halal products. Including, in this case, food ingredients for feed, if it comes from ingredients that are included in the halal category, this will

provide animal welfare because it is inevitable that halal ingredients will not endanger the health of the animal itself (Ashraf & Rahman, 2018).

Based on the feeding conditions at Mbah Agung Karangbanar Recreation Forest, Banyumas, Central Java, Indonesia, and what types of food are provided by visitors in the *Macaca fascicularis* group, in this case, the group leader is alpha-male. Visitors do feeding by visitors, including types of halal foods. How alpha-male *Macaca fascicularis* looks for food at the observation site when feeding, what is chosen to eat, not all feedings are accepted by alpha-male. Therefore, this study aims to explain how the types of feed given by visitors to alpha-male *Macaca fascicularis* at Mbah Agung Karangbanar Recreation Forest.

RESEARCH METHOD

Study Sites

The study was conducted between July and December 2020 in Mbah Agung Karangbanar Recreation Forest (locally known as *Makam Kramat Karangbanar*), Kalisalak sub-district, Kebasen district, Banyumas regency, Central Java, Indonesia, with location coordinates -7.5315027 and 109.2346672, which; the recreation forest type is the evergreen forest that coexisted between human and long-tailed macaque. This study focuses on focal animals (focal animal sampling) (Altmann 1974) as the subject for observation is the alpha-male *Macaca fascicularis* at the study site. Observations were carried out for ten days, with each day starting at 08:00 and ending at 17:00. Each time, there is an observation session (interval), which is divided into 15 minutes. So that within ten days of observation, a total of 32 intervals were obtained. The study site can be seen in Figure 1.

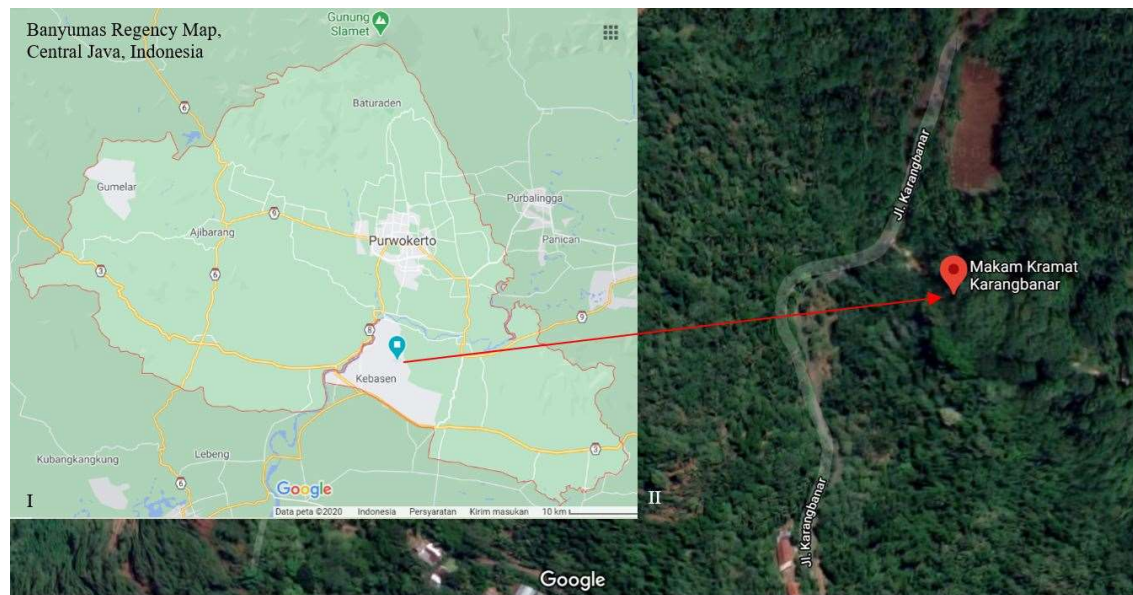


Figure 1. Study sites of this research (locally known as *Makam Kramat Karangbanar*). Source: Google Maps, 2020.

Data Analysis

This study used behavioral coding to measure the frequency and quantity of feeding behavior for ten days based on visitor feeding (provisioning food). The remainder of the provisioning food found is recorded as data on the type of provisioning food. Recorded categories and types of feed are shown in the graphic diagram.

RESULT AND DISCUSSION

Alpha-male Only Eats Halal Food Provisioning

During the observation, the alpha-male *Macaca fascicularis* carried out feeding activities based on provisioning food given by visitors 157 times. This provisioning food activity is carried out whenever visitors come to tourist sites and provide food to *Macaca fascicularis*, and alpha-male as group leaders who always succeed in getting the first time provisioning food. The feeding activity of alpha-male provisioning food during the 10-day observation can be seen in Figure 2.

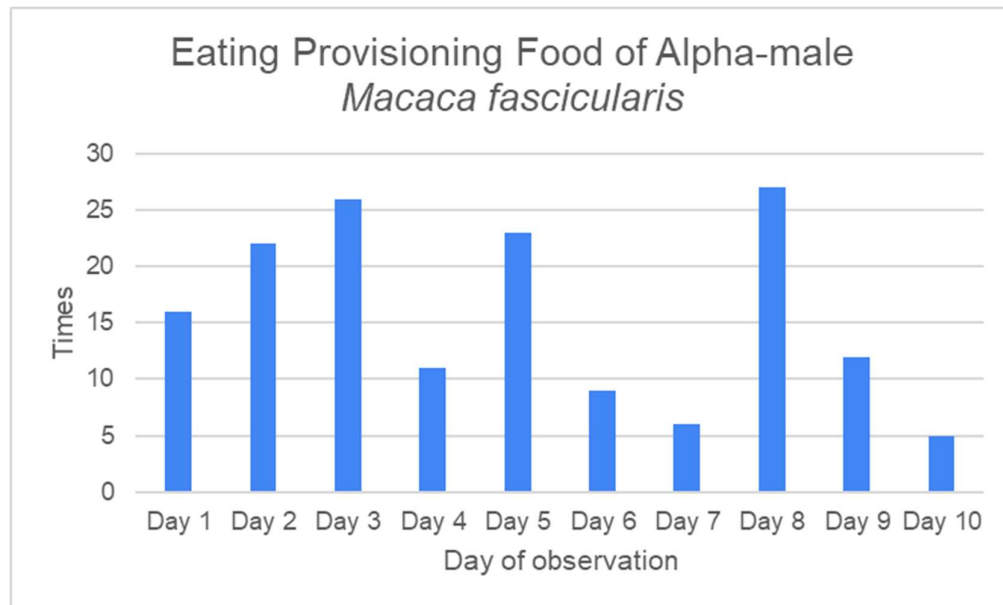


Figure 2. Alpha-male activity in feeding provisioning food from visitors. Source: data obtained.

Based on Figure 2, the total number of eating provisioning food is 157 (total maximum party size, which indicates the total amount of provisioning food preference in some habitats for all groups), as shown in Table 1. The provisioning food that the alpha-male ate consisted of peanuts (fried, *kacang goreng*), bananas, sweet potatoes (*ubi jalar*), snacks (*makanan ringan*), and foods mixed with soy sauce (such as the provisions the researchers brought to eat, some were given to the alpha-male). Another site reported that the total provisioning food in Cikakak Monkey Park, Banyumas Regency, Central Java is 98 (total maximum party size). That site was categorized as semi-provisioned habitat (Hadi *et al.* 2007).

Table 1. The number of total eating provisioning food.

	Peanut	Banana	Sweet potato	Snack	Foods mixed with soy sauce	Total
Day 1	16	0	0	0	0	16
Day 2	6	10	4	2	0	22
Day 3	13	4	3	5	1	26
Day 4	5	0	0	3	3	11
Day 5	16	4	3	0	0	23
Day 6	9	0	0	0	0	9
Day 7	3	0	3	0	0	6
Day 8	10	2	7	5	3	27
Day 9	6	4	0	2	0	12
Day 10	5	0	0	0	0	5
						Total 157

Source: data obtained.

With such a large number, we try to map the distribution of food from visitors. The distribution of the types of provisioning food eaten by alpha-male can be seen in Figure 3.

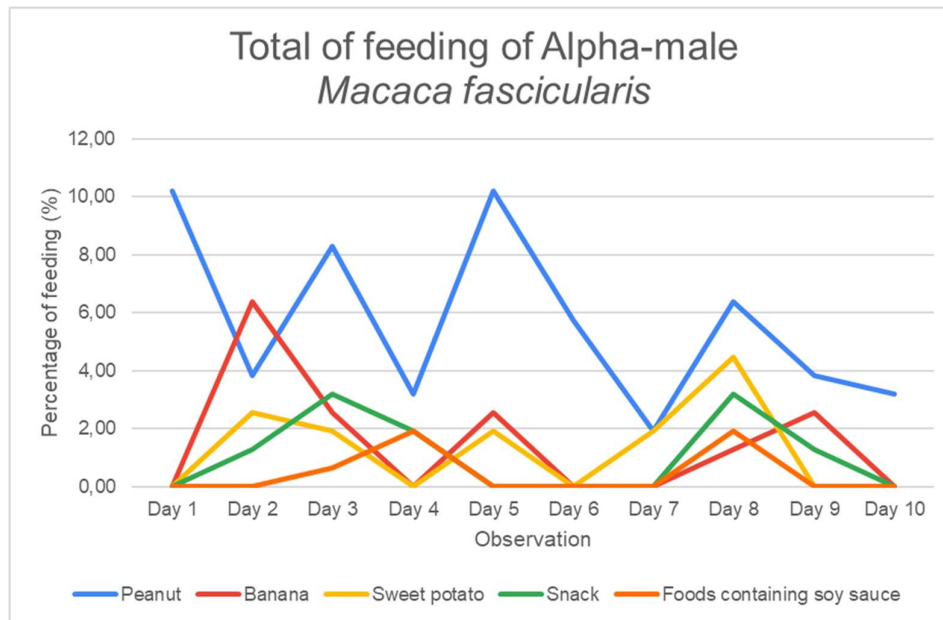


Figure 3. Percentage of food from several types of provisioning food. Source: data obtained.

Based on Figure 3, the alpha-male only ate provisioning food such as peanuts, banana, sweet potato, snacks, and foods containing soy sauce. There are five types of provisioning food that, when viewed in content, come from cooked food. During the observation, visitors were frequently seen giving peanuts. Documentation of visitors giving peanuts to alpha-male and troops of *Macaca fascicularis* can be seen in Figure 4.



Figure 4. Feeding by visitors to *Macaca fascicularis*.
Source: researcher documentation.

Based on Figure 4, a visitor can be seen giving peanuts to a group of *Macaca fascicularis* during the observation. The cooking-type of provisioning food such as fried or boiled, in this case, the preference of provisioning foods are peanut, banana, sweet potatoes, snack, foods mixed with soy sauce, can be categorized in fried and boiled food—the fried food, including peanut, snack, and foods mixed with soy sauce—furthermore, the boiled food including sweet potatoes. The process of

cooking-type of fried provisioning food such as peanut comes from peanuts obtained from traditional markets and then fried at home, and ends up in small home-based shops that are sold. This argument is based on an interview with a food seller near the recreation forest. Even visitors bought some provisioning food there; we also interviewed some visitors who bring the provisioning food for long-tailed macaque.

On the other hand, foods mixed with soy sauce also come from home fryers, generally food supplies for visitors. Furthermore, the snack that is fed to alpha-male is labeled halal. Most types of snacks on the market have a halal label because the area around the recreational forest is dominated by Muslim communities (based on secondary data from the local government) (Quantaniah *et al.* 2013). Muslim people will also prefer snack products with halal labels (Efendi *et al.* 2019; Randeree 2019). They will look at the food ingredients listed on the packaging, whether it supports halal products or vice versa (Al-Teinaz 2020).

The habit of visitors when they come to the recreation forest, which always provides provisioning food, has been memorized by the *Macaca fascicularis* troops. Once we arrived at the location, we were greeted by *Macaca fascicularis* and led by alpha-male when approached. They did not hesitate to wait to provision food. Alpha-male is noted to receive frequent provisioning food, especially peanuts. Nuts often found from alpha-male leftovers, including fried peanuts ($\Sigma=89$, highest provisioning food), are halal because humans can also consume them. Alpha-male eating peanuts from the results of provisioning food by visitors can be seen in Figure 5.

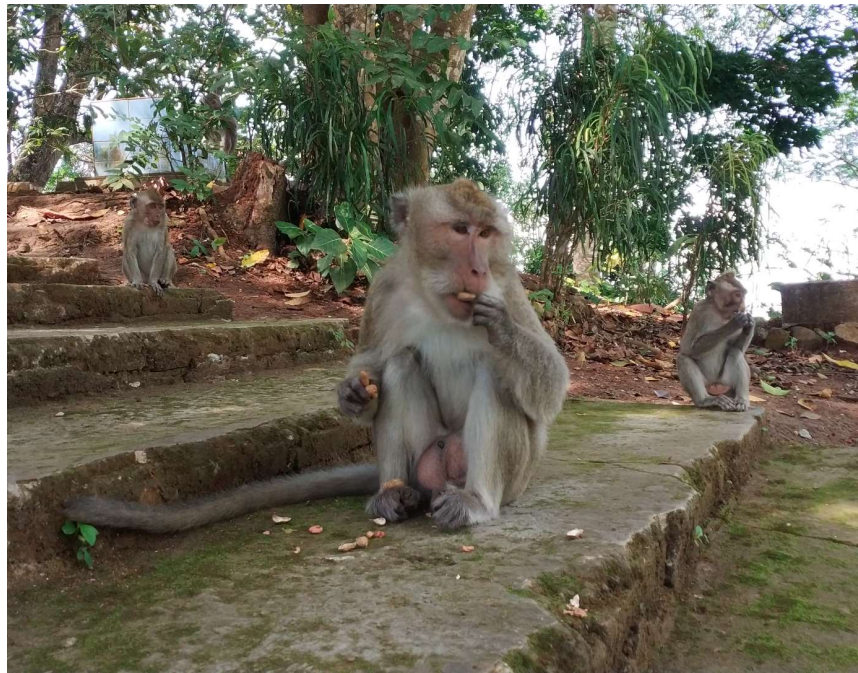


Figure 5. Alpha-male is eating the peanuts the visitor gave him. Source: researcher documentation.

The second highest type of provisioning food is bananas. These bananas are obtained from visitors who come. Of course, visitors do not eat the bananas they bring, even though they are halal and edible while visiting tourist sites. Still, they deliberately provide ripe whole bananas that are given to the *Macaca fascicularis* group, and of course, as alpha-male, must be the first to get them. An alpha-male eating a ripe banana can be seen in Figure 6. Bananas are derived from agricultural food, like sweet potatoes, derived from the farmer (Jefferies *et al.* 2004; Hockings & McLennan 2012; Vávra *et al.* 2018). Agricultural food is generally processed in a halal manner, and it is rare to find cases of *najs* in the agricultural process.



Figure 6. Alpha-male feeding banana from a visitor. Source: researcher documentation.

Apart from peanuts and bananas, visitors gave the alpha-male and *Macaca fascicularis* troops including sweet potatoes that humans, including halal, could eat. Also, we tried to bring snacks and food supplies, including foods mixed with soy sauce. Of course, this is halal because several *Macaca fascicularis* approached us, so we gave food to them, including the alpha-male who led the group. We found a carcass during the observation, but alpha-male and others were reluctant to approach it, let alone eat it. According to Iqbal *et al.* (2019), carcasses are included as *najs*, dangerous, and are not allowed to be consumed, not halal (*haram*). Besides, alpha-male do not approach the carcass at all, even with a facial expression of disgust when passing it.

The habits of visitors who provide this food can undoubtedly affect the health of the animal itself. According to Maréchal *et al.* (2016), provisioning food may overall have negative impacts on the health of wildlife (including long-tailed macaque); it has been linked in particular to larger body size and elevated stress levels, and more alopecia. Besides, some cases of pathogen transmission to humans are linked to macaques based on human-primate interaction (Fuentes 2006). In addition to health, the impact on behavior, habitat use, and human-primate conflict can be seen from the animals used to getting artificial or provisioning food (Sha & Hanya 2013; Ilham *et al.* 2018). The health benefit of nutrition from provisioning food such as fiber and protein (Korkerd *et al.* 2015) can also be seen from the body posture of the long-tailed macaque (alpha-male and troops), which still looks ideal, not too thin, not fat. Further research is needed to record the natural food consumed to be compared with the provisioning food data.

CONCLUSION

Alpha-male was noted to eat provisioning food such as peanuts, bananas, sweet potatoes, snacks, and foods mixed with soy sauce, all of which are halal. Alpha-male was noted to have no interest in the carcasses found, so they did not eat them. The body posture of alpha-male and troops looks ideal but needs further research to compare between natural food and provisioning food.

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