

# Stone Curry: *P. perlatum* as a Secret Spice in Indian food

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ABSTRACT: The lichen *P. perlata* is a popular “secret spice” in spice blends throughout the Indian subcontinent. Its lack of a specific aroma or describable flavour has meant that cooks struggle to explain its culinary role, yet noting its contribution to an extraordinarily complex flavour profile, sorely missed by its absence. It is the decisive ingredient in the making of many regional masalas like *Kala* and *Goda* masala of Maharashtra, the Anglo-Indian *bottle masala*, *bhojwar masala* from Hyderabad, *potli masala* in Lucknow, or in the spices that go into the making of great Chettinad chicken curry in Tamil Nadu. It is what many cooks and commercial spice blend makers believe sets apart the accomplished from the amateurs. In this paper, I examine the use of stone-flower as a spice in Indian food, studying its practice with prospects for the future. I map the Indian culinary landscape for stone-flower from infusion styles to their use in recipes, seeking to answer its contribution to flavour, and how this understanding can help us in new uses and innovative contexts of use for the stone-flower. Putting the focus in tracing a single ingredient’s role in various masala blends of the subcontinent, I am humbled. It carries the stories of human curiosity, ingenuity, travel and migration in its most sensorial way.

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## A Lichen Found its Way into a Curry, Quietly

A very curious spice *Parmotrema perlatum*, called stone-flower, is an immensely popular “secret spice” in spice blends or masalas throughout the Indian subcontinent (Figure 1). It is a lichenized fungus of the Parmelioid family (Parmeliaceae). Lichens, by their very classification on the cusp of the plant and animal kingdoms, are fascinating.<sup>1</sup> The stone-flower has broad, curled foliage, typical of foliose lichens; grows in large round mats with a wrinkled surface; are light grey-green on the upper surface; and dark, purplish-black on the underside.

It is known as stone-flower in English. Other vernacular names include *shipal*, *shaileya*, *shilapushpa* (Sanskrit), *kalpasi* (Tamil), *pathar phool* (Hindi), *dagad phool* (Marathi), *chaileyam* (Malayalam), *Shaiba*, *ushnea* (Arabic). All mean flowers that grow on stone. But as its name and many vernacular forms suggest, stone-flower may not be growing only on stones. Upreti et al. (2010) assert that it grows in the Nilgiris and Palani Hills in India.<sup>2</sup> *P. perlatum* prefers well-lit, neutral to somewhat acid-barked broad-leaved trees and sometimes siliceous rocks and coastal rocks where illumination is moderate to good.<sup>3</sup> Its



FIGURE 1. Stone-flower. Botanical name: *Parmotrema perlatum*; binomial name: *Parmotrema chinense*.

*Susruta Samhita* (1000 BC), and several *Nighantu* (AD 1100-1800); the identification of Sanskrit names refer to several species of Parmelioid lichens such as *P. cirrhata* and *P. perforata*, *P. sulcata*. (Kumar & Upreti 2001) They are substances of great medical interest across other practices of natural medicines like Unani and Siddha; and appear under the vernacular name *Charilla* (syn. *Chadillo*, *chhadila*) for various diseases and disorders.

The Tamils have long known the stone-flower for its therapeutic use. *The Supplement to the Pharmacopoeia of the King and Queen's College of Physicians* (1856), writes 'the knowledge of stone lichen among the Tamils with its effect as a diuretic is truly astonishing. Among the indigenous diuretics, none deserves more attention than the Kalpasi of the Tamils, which Ainslie has identified with the *Lichen rotundus*. This lichen grows plentifully on the rocks in some parts of Southern India, and is met within a dry state in most of the medicine bazaars of the Peninsula.'<sup>6</sup> Ainslie (1813) in his *Materia medica* states '*Pathar ke phool* (Hind.) *Kull pashie* (Tam) and *Ratipanchi*, (Tel.) possess peculiar cooling qualities and is used in the preparation of a liniment for the head or as a poultice applied night and morning over the region of the kidneys for better urination.'<sup>7</sup> Ainslie, however, seems to have recorded the lichen name erroneously while his description and use match the general knowledge on stone-flower. *The Travancore Gazette* lists it as one of the herbs collected for sale corroborating the fact that the stone-flower lichen was available abundantly and had commercial value as herbal medicine.<sup>8</sup>

In this paper, I examine the use of stone-flower as a spice in Indian food. Firstly, understanding gathering and material handling through fieldwork and interviews, then describing its contribution to flavour with experiments and eventually mapping the Indian culinary landscape for the use of stone-flower – from infusion styles to their use in recipes – to study its practice with prospects for the future.

presence indicates open, thinned-out forests with more sunlight.<sup>4</sup> Goyal et al. (2016) suggest that the vernacular forms for stone-flower like *pathar phool*, *kalpasi*, *chaileyam* and *shilapushpa* could refer to its traditional therapeutic action on *ashmari* (urinary stone) in the Ayurvedic system of Indian medicine.<sup>5</sup>

A literary review of ancient uses of stone-flower traces back to the *Atharva Veda* (1500 BC),

### Gathering and Material Handling

In conversation with masala manufacturers and wholesale suppliers of herbs in Uttarakhand, India, I learnt that collection of stone-flower from temperate broadleaf forests of the Himalayas is mainly done in winter and early spring. The moisture in the air makes it easier to pick the lichens from their substrate without much damage. Gatherers, usually villagers and local ethnic groups manually scrape the lichen using a sharp knife-like tool from the lower branches of oak trees, trunks and fallen twigs. Many factors control the prices such as availability, weather, labour, and demand and cooperatives help regulate them. Women sort and clean the lichens by hand. They visually inspect them before grading, then separate using vibrators and air-dry the lichen. Stone-flower picked at higher altitudes have larger foliage and a higher percentage of aromatic compounds and graded to be of higher quality and commercial value. Workers seal the lichens in ten kilograms (22.04 pounds) bags in dry rooms and sell them to large manufacturers of masalas. Export of the highest grades is to the Middle East. In recent years, India has imported stone-flower from Tanzania and Nigeria to meet the booming domestic herbal medicine industry. At the time of writing, the imported product is of satisfactory quality at better prices, offering traders better margins.

Humans have consumed lichens mainly as sources of carbohydrates, although the complex carbohydrates in lichens are not easily broken down in the human digestive tract and have an acrid taste. Lichens are boiled in an alkaline medium like wood ash to remove acidic lichen compounds before preparation and consumption. It is crucial to note the omission of this step in the case of stone-flower, presumably due to the small quantities consumed as a spice.

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India has a vast domestic market for spice blends. Brands such as Everest Spices, MDH, Badshah, Catch, Rajesh, and Ramdev masalas dominate the northern states. Bedekar, K-Pra, and Hathi hold sway in the western region while regional favourites like Priya Masala in Andhra, MTR in Karnataka, and Aachi Masala in Tamil Nadu dominate the south. A systematic scan of their product packaging shows the use of stone-flower in many of their blends. The lack of a common vernacular name contributes to the many variations that appear such as lichen flower, black stone-flower and stone-flower lichen. They are fairly expensive, selling at INR 450 per kilogram (May 2020) at wholesale markets in Uttarakhand and online retail shops selling it for twice as much.

In Indian bazaars, lichens sold by the name *Charilla* typically consist of a mixture of 2 or more species of *Usnea*, *Parmelia*, *Ramalina* or *Heterodermia* and are widely used in the herbal products industry.

For domestic use, stone-flower retails in small packages weighing 10 to 50 grams (0.02 to 0.11 pound).

As a dry store cupboard ingredient, the lichen is light and voluminous. The surface is sturdy but with a delicate, fabric-like quality and does not crumble between your fingers, but tears easily. Some pieces may still have wood from the substrate which does not matter

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in a masala. The smell in its dry state is mostly anosmic and sometimes mildly warm and woody. It is flavourless, accompanied by a very dry mouthfeel making it almost impossible to eat on its own. It is stored dry in an airtight container and stays usable for a long time.

### Understanding the Contribution to Flavour

I have taken stone-flower out of its known context (i.e. in a spice blend) and experimented by applying a series of conventional cooking techniques – soaking, steaming, frying and dry grinding to scrutinize its contribution to gustation, perception and acceptance.

#### *Soaked*

A couple of pieces of stone-flower were soaked in filtered water and left undisturbed for 24 hours. The soaking liquid had turned a clean pink. The lichen appeared hydrated and stable but had not changed in colour. Prolonged soaking had not affected its laminal strength, and they were still tough to eat.

The smell developed over the soaking period. At about two hours of soaking, the smell was ripe with a dewy petrichor. There was a mild spicy note, reminiscent of cold green tea. At 24 hours, the smell was very aromatic, dense, and woody. If one is familiar with Indian cuisine, it was not difficult at this point to feel a ‘masala’ like smell emanating from it.

At this point, the lichen was incredibly sweet to taste with a very bitter aftertaste. On repeated testing, the bitter aftertaste seems to remain. The soaking liquid mirrored this taste experience.

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#### *Steamed*

The soaked pieces were now placed on a clean muslin and steamed at 100°C for 10 minutes. Now the lichen pieces looked lighter, moist and were delicate to touch. They were not fragile and displayed structural stability. The aroma was denser, displaying a bright ‘masala’ note. It did not taste sweet at all, and this was surprising and counterintuitive.

#### *Frying*

I fried the steamed pieces immediately in hot oil at 130°C. The pieces stopped bubbling in oil after about fifteen seconds and were removed and drained on a kitchen towel. The air is filled with a fantastic, heavy, aroma immediately likened to a ‘masala’ smell.

On tasting, the lichen had attained shattering crispiness with a very delicate, intriguing mouth feel. It did not taste sweet but fell short of my mind’s expectations set off by its intense aroma. I dressed a few pieces with sea salt and tasted it. The salt instantly brought out its flavour. The lichen had a mushroom flavour, but one peculiarly it’s own for dense and sapidity of savour. It was rich and full of umami tasting wonderful as a snack.

Wood remnants stuck to some of the lichen pieces do not fry well and taste undesirable.

## The Recipes

Nandita Godbole, in her book *Ten Thousand Tongues: Secrets of a Layered Kitchen* (2018), writes of the stone-flower and its appetizing flavour and the satiety it offered to a dish:

Bapu and Ratanlal settled to eat their dinner before the women. Ratanlal liked the spice, and though he was craving a meat preparation, it would be an inconvenient request at such a late hour. The misal was a stew of moth beans cooked down with onions and spices. They could taste the heat of the black pepper, the nuttiness of dried coconut and the unmistakable dagad phool, a lichen popular in this region. The lichen gave the stew a meaty aroma.

A pot of well-made misal stewing in a kitchen sent out invisible messengers, its aromas inviting strangers and friends alike.....it made even the most satiated diner hungry.

The journey mapping the use of stone-flower as an ingredient in food has been fascinating. Two main patterns evolve:

1. The first is dietary choice- its use in the vegetarian kitchen and a non-vegetarian one.
2. The second is cultural- its use in Muslim kitchens across the Indian subcontinent and in regional kitchens influenced by the Marathas. The foods of Pakistan, Nawab, influenced Uttar Pradesh, Nizam influenced Hyderabad are examples of the former. The foods of Maharashtrian Brahmins, communities of Saoji, Kolli, Pathare Prabhu, Saurashtrians of Thanjavur and Chettiers of Karaikudi and Pudukottai are good examples of the latter.

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Before I go ahead to show you the vast range of regional cuisines that use the stone-flower as a star ingredient, I must highlight that in India, people have different expectations of food cooked by home cooks and professional cooks both being respected and unique. A divisive opinion extends to the kind of food cooked in these two contexts. Professional cooks are expected to know secret techniques and add secret spices to make a dish taste addictively good. Stone-flower is undoubtedly considered one of those secret spices seen more in the professional cook's spice box than at home. The sheer diversity of the human palette has given every cuisine with innumerable variants where 'authenticity' is open to interpretation.

### *Stone-flower in the Muslim kitchen*

The street cooks of Lucknow (*nanbhais*) are known to cater to the family table, each specializing in a dish. They produce a product unparalleled in the home kitchen. From this culture, appears the spice blend, 'potli masala' or *sachet d'épices*. The stone-flower, known here as *pathar phool* is a star 'secret' ingredient. Its ambiguous form and lack of aroma protect its stealth presence in the cooks' domain. Imtiaz Qureshi, the famous proponent of Mughlai cuisine and progenitor of the most prominent Mughlai chefs in India today, relates his early

days as a cook in Lucknow when he would carry his secret spices in a small pouch and not disclose them to other cooks. The competition was stiff, and the plagiarism was rife.<sup>9</sup>

In Lucknow, a variation of the *potli masala* is called *Lazzat-e-Taam*, or ‘that which enhances the taste of food’ is the signature masala used in Awadhi cuisine. Stone-flower is mixed with fragrant vetiver roots and rose petals and other typical Indian spices. A *pansari* or traditional spice and herb dealer would sell this masala. *Lazzat-e-taam* is typically added to ground meat and kneaded, allowed to rest before being fashioned into kebabs and cooked. A *korma* such as *Awadhi ghost korma* or *Lucknawi korma* calls for the masala as a final addition to the preparation.

In Hyderabad, cooks use another variation of the *potli masala*. Unlike other commercially available spice blends, most of the spices in a *potli masala* are packed whole accompanied by a small sachet of ground spices, the ingredients of which not clear keeping the ‘secret’ and mystique intact; and stone-flower is a crucial ingredient. The contents are boiled in water to make a strong decoction that is added to the gravy as it cooks. *Nihari*, a slow-cooked stew of meat and marrow, *shorba*, a meat-based broth and *paya*, a variety of foods cooked with trotters call for *potli masala*.

Blooming the stone-flower in water versus in hot oil is a distinct difference from the typical use of spices in the subcontinent.

The Muslim kitchens of Hyderabad prepare bhojwar masala with stone flower, peanuts and coconuts for stuffed dishes such as *baghara baingan*, stuffed aubergines, *mirchi ka salan* stuffed banana peppers in a sauce, and *mahi gosht*, a meat-based curry. Stone-flower is sometimes mixed with chickpea flour if used in a rub to prevent it from turning the food black.

The use of stone-flower in *biryani*, an aromatic rice dish with meat, fish or legumes is ubiquitous in the Muslim kitchens of the subcontinent. So much is its importance in imparting that defining, restaurant-style “*biryani*-flavour” that the stone-flower is also called *biryani* flower. Some people only know it by that name!

The Muslims of Pakistan and Bangladesh use a variation of the *potli masala* too. But interestingly, it is not known or used among the Bohra Muslims or Moplahs of Kerala.

### **Stone-flower in the Maratha kitchen**

The *Rasachandrika* (1943) uses stone-flower, known here as *dagad phool*, in its recipe for *amti* masala, a traditional spice mix of the Saraswat Brahmin community. Various simmered lentil preparations like *varan* and its namesake dish *amti* use the *amti* masala. It is added to the cooked dal and simmered to finish.

Gravies like *patal bhaji*, a dish of colocasia leaves, peanuts, and split garbanzo and *sukki bhaji* made of radishes uses *amti* masala together with tamarind and boiled vegetables and is allowed to simmer for a few minutes before proceeding to finish. *Upkari* a dry, stir-fry often made with banana flowers uses *amti* masala and powdered jaggery as a finish to the dish.<sup>10</sup>

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Narayani Nayak (1953) recording the traditional cuisine of Maharashtrian Brahmins outlines the meticulous preparation of *goda* masala, a traditional mix with stone-flower in copious quantities. It contributes to the characteristic dark colour and deep, aromatic taste.<sup>11</sup>

*Kala* masala, another regional variant and *goda* masala are often confused and is a topic of much debate. Nevertheless, stone-flower is unanimously considered both the star and the secret ingredient in both.

*Koli* Masala of the Konkan fisherfolk uses stone-flower, slow-roasted in a warm clay pot. The stone-flower is cooled and ground into a powder with other spices. Cooks add the *koli* masala in hot oil after frying ginger, garlic, or onion pastes.

Soumitra Velkar from the Pathare Prabhu community gives us a recipe for their *sambhar* masala where stone-flower is an essential spice. Only poppy seeds, dry chillies, bengal gram and wheat, are roasted in a little oil while all the other spices including stone-flower are just ground (neither roasted nor toasted). The word *sambhar* he explains is ‘*sam*’ meaning equal, referring to equal parts of grains, spices and coriander-cumin seed and ‘*bhar*’ meaning quantity, making the role of the stone-flower remarkably more prominent here.<sup>12</sup> The Pathare Prabhu *sambhar* masala is different from the Tamilian masala of the same name.

*Mutton Rassa*, an essential dish of the Saoji community in Nagpur, who have set up eateries across the region uses stone-flower, dry roasted along with other spices, ground into a fine paste using water, then added to hot oil and sauteed to release the aroma.

272 K-Pra, a wildly popular spice manufacturer in Pune, Maharashtra, lists stone-flower on their ingredients lists for many blends like *goda masala*, *kolhapuri masala*, *malvani masala* and *misal masala*. Some of their more famous, pan-Indian dishes like *pav bhaji*, *chana masala*, and *garam masala* also have stone-flower.

The traditional masala from Goa, Xacuti, also calls for stone-flower in some versions. Michael Swamy in *East Indian Kitchen* (2010) gives us a traditional recipe for *East Indian Bottle masala* with stone-flower supplying the paramount flavour. The masala is hand-pounded and includes buds of the ironwood tree and *Artemisia vulgaris*, typical of the Western Ghats.<sup>13</sup> *The East Indian Cookery Book*, (1981) uses *bottle masala* in 34 of its recipes, including much-loved dishes like duck *moile* and prawn *lonvas*.<sup>14</sup>

Yet, the most popularized use of stone-flower is in Chettinad cuisine, known here as *kalpasi*. Here it is added, early in the cooking process after clove, cinnamon, star anise and kapok buds have been bloomed in hot oil. Chicken, lamb and seafood that are popular among the Chettiars make use of the stone-flower.

Talking to professional cooks, I understood that it is used judiciously and sparingly due to the intensity it imparts. Some families may simply not enjoy this and hence instruct cooks not to include any.

The Chettiars have absorbed many ingredients, cooking styles and flavours from Burma, Cambodia and Malaysia where they had secured trade connections. Many Chettiars

strongly believe they have borrowed the use of stone-flower from these cultures, like star anise from China. But I have not found any references or evidence for this claim.

The NPCS Board of Food Technologies (2019) outlines recipes for commercial manufacturing of masalas. The stone-flower features in many recipes in substantial quantities.

*Goda masala* calls for 500 grams (1.1 pounds) of stone-flower in all three variations of its 1000 kilograms (2200 pounds) blend with cloves, cinnamon, black pepper, and cassia buds. (0.05%)

*Shahi biryani masala* uses 2 kilograms (4.4 pounds) of stone-flower in its recipe for 1000 kilograms (2200 pounds). (0.20%)

*Garam masala*, a ubiquitous spice blend uses copious quantities of stone-flower. A 1000 kilograms (2200 pounds) batch needs 30 kilograms (66 pounds) of stone-flower. (3%)<sup>15</sup>

Infusing the stone flower in the cooking liquid is also Saudi Arabia and Libya. The stone-flower, known as *shaiba* leaves, is infused in meat stews and casseroles like *Mofatab al dajaj*. *Albokary* and *Saba wa Aifa*. In Libya, *shaiba* leaves is an important ingredient in *Tbeikhet 'Eid*, a stew of lamb and chickpeas and *Sharba*, a Libyan soup.

While the medicinal references of stone-flower are many, it has been hard to isolate an instance in history when it found its way into cuisine. We depend on oral traditions, lore, and memory in the absence of cookbooks making the story complicated. Over the last few decades, the use of stone-flower has become prevalent among cooks in the subcontinent as a 'secret' additive to their masalas, increasing the lichen's demand.

Did the medicinal use of stone-flower among the Tamils inspire its culinary use in Chettinad? Could it have been possible that the Maratha rulers of Thanjavur learnt this and spread it through the Deccan? Or could it be the Marathas who foraged it in the Western Ghats and shared its culinary use with the Tamils? How is it that the stone-flower finds a ubiquitous use in the meat dishes of Muslim India – from Lucknow to Hyderabad and beyond to Pakistan and Bangladesh?

But I should refrain from the temptation to find a pattern, join the dots, and present a monocentric story to you. History of food is not always straightforward.

Elsewhere in the Indian subcontinent, there is a more diverse use of lichen in food. The Limbu and Rai communities of Nepal consume at least three lichen species, *Everniastrum cirrhatum*, *E. nepalense*, and *Parmotrema cetratum* as a delicacy and bulking agent and not a spice. Ethnobotanists regard the Limbu and Sherpa ethnic groups as most lichenophilic in the region. *Sargyangma*, a kind of sausage made up of minced pork, lichens, pork's blood, eggs, fat, and spices are their most popular dish.

### How Can this Understanding Help Us in New, Different Uses for the Stone-Flower?

I noticed that the stone-flower is part of a salty, savoury dish. In the Indian subcontinent, it is quite common to find spices like cardamom, clove, cinnamon, saffron, star anise, pepper,



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nutmeg and garlic too play a role in both salty and sweet recipes. It's indeed thought-provoking that the stone-flower doesn't find itself in a sweet rendition.

The inclusion of stone-flower at different stages of cooking has an imminent impact on its flavour.

Cooks use stone-flower in specific flavour dispersion techniques in India:

1. Addition to hot oil, so the spice infuses its aromatic compounds into the oil, allowing for its fat-soluble flavour compounds to infuse in the oil rapidly which then forms the base of a gravy. (e.g. in Chettinad) As the rest of the cooking process follows, it causes the potent and pungent spicy notes to become undertones. One smells the aroma first but tastes it last.
2. Sun-drying, toasting and hand-pounding the stone-flower into an aromatic masala with longer shelf life. It is added to the cooking liquid, which on careful simmering keeps the aroma and flavour as top notes. (e.g. *goda*, *kala* and *bhojwar* masala).
3. Wet grinding of the roasted spice for immediate use or shorter shelf life. (e.g. Sao's Mutton Rassa). A braised approach to blooming the watery paste in oil intensifies the infusion.
4. Steeping in the cooking liquid (stew, broth, curry pastes) in two ways – Infusing at an appropriate time in the cooking process allowing for profound control to achieve the desired flavour and making a decoction allowing for more developed, deeper flavours. (e.g. Hyderabadi *potli masala*.)

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The role of stone-flower in a dish is not as a significant taste but rather a taste enhancer – bringing a depth to the plethora of spices already in the mix. As many people refer to it as the “meaty taste” which makes me wonder if it behaves the same way as *umami* in the dish? Lichens do synthesise amino acids, one of which is glutamate and this could contribute to this flavour. Savoury combinations heighten the umami experience.

Chef Izzat Hussain suggests a stone-flower marinade for Kalpasi Tikka. It is an exciting and novel way to taste the stone-flower in the company of just a few spices and a simple cooking technique. Stone-flower mixed with equal quantities of black pepper, long pepper, and cloves with apple cider vinegar tenderizes the paneer for about 30 minutes before they are coated with roasted gram flour and chargrilled.<sup>16</sup>

The lack of any fat on the paneer singed the spices, so I added little oil to the marinade before repeating. The fat vastly improved the finish; the spices now roasted in oil and the resulting dish tasted novel and fantastic! The stone-flower aroma shone, cutting the piquancy of the peppers and pungency of the cloves. The aroma that fills the air reminded me of a *garam* masala.

**Can this help us create new spice combinations and innovate contexts of use?**  
In a different take from the plethora of recipes using stone-flower, I came across an interesting recipe for a dessert that used stone-flower. Chef Mukesh Rawat served Chettinad chocolate

at the Hilton, Chennai where he infused chocolate with stone-flower. I tried recreating the dish, but the lack of a complete recipe left me clueless about the desired finish. To make a 100-gram bar of chocolate, I chose a single estate, Indian origin cocoa with 70% cocoa. I fried a few small pieces of stone-flower in cocoa butter and mixed it with the melted chocolate, poured into moulds, and set dotting some pieces with sea salt.

On tasting, the chocolate tasted chiefly of itself- high-quality chocolate with bright, fruity notes. But the pieces specked with a grain of salt had a deep, robust aromatic aftertaste of the stand. The taste lingered long after eating the chocolate. The use of stone-flower in sweets and desserts is undoubtedly a new area for exploration.

In 1986, Moxham wrote, 'despite the large number of lichens processed, their abundance in the preferred collecting areas and reasonably rapid growth seem to indicate that conservation measures are not necessary at the moment, although transboundary air pollution may be a long-term threat'. By 1997, Shah documented the need for protection and conservation of lichens in India because of their intense exploitation, complaining that conservation has not received the desired attention. In 2010, Upreti et al. declare stone-flower as rare and threatened may be due to overexploitation. They are sensitive to air pollution like most lichens. The lichens exploited in India grow at rates from 5 mm/year to about 2 cm/year for the most rapidly growing leafy (foliose) lichens.

The spice industry today is global in its cultivation and consumption. Today, commercial farming of most spices is at scale. Lichens are naturally occurring, and cannot be farmed. They are deeply affected by the environment, which makes them natural bioindicators of air pollution. With global air quality deteriorating and threatening to wipe out sensitive ecosystems around the world, the rapid depletion of lichen habitats is a cause for concern.

Putting the focus on the use of lichens as a spice emphasizes our relationship with spices from time immemorial – a curiosity for the exotic, insatiable desire to get them, unheeded approach to their cultivation and commercial exploitation and if not checked in time, a blundering consumption unto extinction.

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### Notes

1. Angus Stevenson, *Oxford Dictionary of English*, A lichen as composite plants consisting of a fungus that contains photosynthetic algal cells. Their classification is based upon that of the fungal partner, and the algal partner is either green algae or cyanobacteria. (Oxford University Press, 2010).

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