

DIETARY BIODIVERSITY IN MANU-SAMHITĀ

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(Received 23 August 1999)

The ancient texts indicate that the biodiversity has been influencing thoughts and activities of human societies since ages. At the same time, the social customs and practices have been contributing, directly and indirectly, towards the conservation of biodiversity. Hence, analytical studies of ancient texts become important in comprehending the evolution of thoughts and measures on the conservation of biodiversity.

The *Manu-samhitā*, an ancient (c. 2nd century BC to 2nd century AD) Sanskrit text, contains discussions on the edibles and non-edibles (chs. 5 and 6), and on the food-articles capable of satisfying the manes for different lengths of time (ch. 3). These data have been collected and analysed to estimate the range of biodiversity, permitted by Manu, as diet. It has also been observed that Manu's instructions on food go a long way to conserve the biodiversity.

Key Words: Biodiversity, conservation, edibles, *Manu-samhitā*, non-edibles.

From the hunter-gatherer state to the settled life of agriculturists or even in urban life, human being has always remained intimately connected with and dependent upon various types of plants and animals. Biodiversity has always exerted influence on various facets of human life, from the basic need of satisfying hunger to refined intellectual exercises. Still, most scientists study biodiversity from the viewpoints of taxonomy, environment and bioresources. Jain¹ has invited attention to the importance of the cultural dimensions of biodiversity. He

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observes that “the strongest intent and concern of all cultures has been to satisfy hunger.”² Hence it may be expected that a study of dietary biodiversity of human society would throw light on some fundamental aspects of cultural dimensions of biodiversity.

The diet of a human society forms the material basis of gastronomic culture of that particular human community. Usually, human groups select constituents of their diet from their respective ambient biodiversity. The selection of the species of plants and animals for the purpose of food depends not only on the availability or on the shape, colour, odour, taste and nutritive qualities of these biological entities, but also on the perception of the respective human society about those plants and animals. The philosophical concepts about human life and that of other living forms also influenced the process of selection. It may be mentioned here that, though the constituents of food in the modernised human societies of all the continents appear to be the same or similar, normally the dietary habits and customs of less modernised ethnic communities are endemic and community-specific. The texts of ancient civilisations often refer to the edibles, non-edibles, connected rituals and methods of expiation for the consumption, even by error, of non-edibles.

India, the homeland of more than four hundred Scheduled Tribes of different ethnicity, is a major centre of ancient civilisations. The texts, written in Sanskrit and other old languages, contain the thoughts about diets of ancient Indians. While work has been done on the food habits of some Scheduled Tribes,³ little has so far been done on the texts of antiquity.⁴ Sanskrit texts are large in number and varied in contents. Further, these texts were written/compiled in various parts of India and in different centuries. For these reasons, it seems better to study one text at a time, and then to arrange the data, thus collected, in accordance with the relative chronology of the Sanskrit texts. For the present work the *Manu-saṁhitā*, the text of which is believed to have been compiled between the second century BC and the second century AD,⁵ has been selected. The importance and attributes of this text have been briefly discussed elsewhere.⁶

MATERIALS AND METHOD

The data regarding dietary diversity are scattered in verses of three chapters (chs. 3, 5 and 6) of the text. The data, collected from all these chapters, have been grouped under the following heads: edibles (Table I), non-edibles (Table II) of the *dvijas*, i.e. the three upper *varṇas* (castes), viz. Brahmin, Kṣatriya and Vaiśya, and foods for satisfaction of the manes (Table III). The data, in the tables, have been further subdivided into (A) plants and plant parts, and (B) animals and animal products.

References to the respective chapter and verse have been given for each item. The Sanskrit names of the plants and animals, as mentioned in the text, have been retained in this article, while the common English names and the botanical and zoological equivalents of the same, wherever possible, have been given in parenthesis.

ENUMERATION OF INFORMATION

According to the *Manu-saṃhitā* (5.28), Brahmā, the god of creation, has caused *sthāvāra* (immovable, i.e. plants) and *jan̄gama* (movable, i.e. animals) as foods, so these can be consumed to sustain life (*prāṇasyāṅnam idaṃ sarvaṃ prajapatir akalpayat/ sthāvāraṃ jan̄gamañ caiva sarvaṃ prāṇasya bhojanam*). The text (5.30) continues that no sin will be caused if one consumes the edibles daily, and it (5.29) explains this principle with the example of the basic food chain (*carāṇāṃ annam acarā daṃṣṭriṇāṃ apy adaṃṣṭriṇaḥ/ ahastās ca saḥastānāṃ sūrāṇāṃ caiva bhīravah*).

Table I. Edibles for the *Dvijas*

A. Plants and Plant-parts

Sl.No.	Name of the Plant(s) / Plant-part(s)	Reference
1.	During <i>gārhasṭhya</i> , i.e. the second stage of life or householder stage. (a) Those roots, flowers and fruits which easily mix with water (<i>yāni caivābhiṣūvante / puṣpamūla-phalaiḥ śubhaiḥ</i>),	5.10

- (b) Yava (barley : *Hordeum vulgare*) - not mixed with fat, and products of *godhūma* (wheat: *Triticum vulgare*) - even when they are old. 5.25
2. During *Vānaprastha*, i.e., the third stage of life, when one has to live in forests
- (a) one should collect paddy during autumn and spring, 6.10
- (b) one should consume aquatic and terrestrial (*sthalajaudaka*) *sāka* (green vegetables), flowers, roots, and articles grown on holy trees (*medhyavṛkṣodbhava*) and fats and oils obtained from fruits. 6.13

B. Animals and Animal Products

Sl.No.	Name of the Animal(s)/Animal product(s)	Reference
1.	Fish - the following fishes, if offered for satisfaction of gods/manes, can be consumed: <i>pāṭhīna</i> (a kind of large cat-fish akin to the flounder, <i>Wallage attu</i>), <i>rohita</i> (rohu : <i>Labeo rohita</i>), <i>rājīva</i> (according to Apte ⁷ it means a kind of deer, a crane and also an elephant, but Monier Williams ⁸ states that it is a species of fish), <i>siṅghatuṇḍa</i> (lion-faced: <i>Bagarius bagarius</i>) and all scaly fishes.	5.16
2.	Meat - according to the text, meat can be consumed under the following conditions:	5.27;5.36
	(a) meat purified by <i>mantras</i> ;	5.27
	(b) flesh of the animal(s) offered in <i>yajña</i> - consumption of meat offered in a <i>yajña</i> is considered a holy act;	5.31 (a)
	(c) meat offered in <i>śrāddha</i> to please the manes and/or gods, and in <i>madhuparka</i> (a respectful offering made to a guest or to the bridegroom on his arrival at the door of the father of the bride; its usual ingredients are honey, curd, <i>ghee</i> , sugar and water); the man who does not eat this type of meat becomes an animal in the following twentyone rebirths;	5.27; 5.35
	(d) to sustain life in absence of other food;	5.27 (b)
	(e) meat of domestic animals, purchased meat, meat donated by others can be consumed after offering the same to manes/gods;	5.32

3. Among the five-nailed animals the following only can be consumed:
śvāvidh (porcupine or porcupine-like animal), *śalyaka*
 (hedgehog: *Hystrix indica*), *godha* (iguana: *Varanus* sp),
khadga (rhinoceros: *Rhinoceros unicornis*), *kūrma*
 (tortoise : *Testude* sp), *śāśa* (hare/rabbit : *Lopus nigricellis*)
 and animals, all having teeth only in one jaw except
uṣṭra (camel: *Camelus dromedarius* or *C. bactrianus*). 5.18
4. Milk, it appears that of all wild animals the milk
 of *mahiṣa* (buffalo: *Bubalus bubalis*) only may be consumed, 5.9
5. Curd and all products of curd. 5.10

Table II. Non-Edibles for the *Dvijas*

A. Plants and Plant-parts

Sl.No.	Name of the Plant(s) / Plant-part(s)	Reference
1.	During <i>gārhasṭhya</i> (second stage of life, i.e. stage of a householder)	
	a) <i>laśuna</i> (garlic : <i>Allium sativum</i>), <i>grñjana</i> (carrot : <i>Daucus carota</i>), <i>palāṇḍu</i> (onion : <i>Allium cepa</i>), <i>kavaka</i> (fungi growing on trees), <i>chatrāka</i> (mushroom), and articles grown on unholy places (<i>amedhya-prabhavāni</i>)	5.5;5.19
	b) blood-coloured exude of trees, extract obtained by cutting a tree, and <i>śelu</i> (<i>Dillenia indica</i> or <i>Cordia myxa</i>)	5.6
2.	During <i>Vānaprastha</i> (third stage of life, when one has to stay in forests)	
	a) <i>bhauma</i> (fungi growing on soil), <i>kavaka</i> (fungi occurring on trees), <i>bhūstṛṇa</i> (<i>Cymbopogon citratus</i>), <i>śīgruka</i> (horse radish : <i>Moringa oleifera</i>), and the fruits of <i>śleṣmātaka</i> (<i>Dillenia indica</i>).	
3.	During <i>gārhasṭhya</i> and <i>vānaprastha</i>	
	a) None should consume the following before offering the same to god(s): <i>kṛsara</i> (rice boiled with sesame), <i>sañjāva</i> (powdered wheat boiled with <i>ghṛta</i> (clarified butter), <i>kṣīra</i> (milk condensed and sweetened) and molasses, <i>pāyasa</i> (sweet rice-porridge), <i>apūpa</i> (sweet pie).	5.7

B. Animals and Animal Products

Sl.No.	Name of the Animal / Animal Product	Reference
1.	<i>Peyūṣa</i> (cow's milk obtained from a cow within ten days of calving).	5.6, 5.8
2.	Milk of (a) a cow whose calf has strayed away or has died, (b) <i>sandhinī</i> (cow in heat).	5.8
3.	Milk of (a) <i>uṣṭra</i> (<i>Camelus</i> sp), (b) <i>avika</i> (sheep: <i>Ovis ammon</i>), and (c) all one-hoofed animals.	5.8
4.	Milk of all wild animals except <i>mahiṣa</i> (<i>Bubalus bubalis</i>) and women.	5.9
5.	<i>Śukta</i> (a naturally sweet substance turned sour for some reason).	5.9
6.	Meat before offering to god(s).	5.7
7.	<i>Kravyāda</i> (carnivorous birds) like <i>śakuni</i> (vulture: <i>Gyps indicus</i> or <i>G. bengalensis</i>), <i>grāmanivāsinaḥ</i> (birds which normally live in villages), <i>ṭiṭṭibha</i> (according to Monier Williams, ⁹ it means <i>parra jacana</i> , thus it may be <i>Hydrodhasianuf chirurgus</i> or <i>Metapigius indica</i> ; some others hold it to be francoline partridge meaning <i>Francolinus</i> sp), and unlisted (as edible in scriptures) one-hoofed animals.	5.11
8.	<i>Kalaviṅka</i> (sparrow: <i>Passer</i> sp), <i>plava</i> (according to Monier-Williams, ¹⁰ a kind of aquatic bird), <i>haṃsa</i> (swan: <i>Anser anser/ A. indicus</i>), <i>cakravāka</i> (ruddy sheldrake : <i>Tadorna ferruginea</i>), <i>sārasa</i> (egret or heron: <i>Bubulcus ibis</i> or <i>Ardea cinerea/A. purpurea</i>), <i>dātyūha</i> (moorhem : <i>Gallinula chloropus</i>), <i>rajjuvāla</i> (a kind of wild fowl : <i>Gallus</i> sp), <i>śuka</i> (parrot: <i>Psittacula krameri</i>), <i>śarikā</i> (myna: <i>Acridotheres tristis</i>), and <i>grāmyakukkuṭa</i> (domestic fowl).	5.12
9.	<i>Pratuda</i> (beak-pecker birds), <i>jālapāda</i> (web-footed birds), <i>nakhaviṣkīra</i> (claw-pecker birds), birds which dip in water to eat fish; and meat left in slaughter-house as well as dried meat.	5.13
10.	<i>Baka</i> (egret or heron: <i>Bubulcus ibis</i> or <i>Ardea</i> sp), <i>balākā</i> (common teal: <i>Nettion crecca</i>), <i>kākola</i> (raven: <i>Corvus corax</i>), <i>khañjana</i> (wagtail : <i>Metacilla</i> sp), alligators, <i>viḍvarāha</i> (rural boar), and all types of fish.	5.14
11.	Animals like snakes which move alone, unknown birds and animals , and all five-nailed animals.	5.17

Table III. Dietary Articles for Satisfaction of Manes

A. Plants and Plant-Parts

Sl.No.	Name of the article	Satisfactory for the period of	Reference
1.	<i>Tila</i> (<i>Sesamum indicum</i>), <i>vrihi</i> (<i>Oryza sativa</i>), <i>yava</i> (<i>Hordeum vulgare</i>), <i>māṣa</i> (<i>Phaseolus radiatus</i> var. <i>Roxburghii</i>),	one month	3.267
2.	<i>Kālaśāka</i> (according to Monier-Williams, ¹¹ it means a pot herb, preferably <i>Ocimum sanctum</i>), and <i>nivāra</i> (wild rice).	indefinite period	3.272

B. Animals and Animal Products

1.	Fishes (according to Kullūkabhaṭṭa, only <i>pāthīna</i> (large cat-fish: <i>Wallago attu</i>) and <i>rohita</i> (rohu: <i>Labeo rohita</i>),	two months	3.268a
2.	Flesh of		
(a)	<i>hariṇa</i> (deer; there are five genera available in India, thus it is rather difficult to get the exact equivalent),	three months	3.268a
(b)	<i>urabhra</i> (sheep: <i>Ovis ammon</i> / <i>O. orientalis</i>),	four months	3.268b
(c)	<i>Śākuna</i> (according to Kullūkabhaṭṭa, birds edible by <i>dvijas</i>),	five months	3.268b
(d)	<i>chāga</i> (goat: <i>Hemitragus jemlahicus</i>),	six months	3.269a
(e)	<i>Prṣata</i> (spotted deer: <i>Axis axis</i>),	seven months	3.269a
(f)	<i>eṇa mṛga</i> (one type of deer),	eight months	3.269b
(g)	<i>ruru mṛga</i> (spotted or black antelope: <i>Antelope cervicapra</i>),	nine months	3.269b
(h)	<i>varāha</i> (wild boar; <i>Sus scrofa</i>) and <i>mahiṣa</i> (buffalo: <i>Bubalus bubalis</i>)	ten months	3.270a

(i)	<i>śaśa</i> (hare: <i>Lepus nigricollis</i>), and <i>kūrma</i> (tortoise : <i>Testudo</i> sp),	eleven months	3.270b
(j)	<i>Vārdhrīnasa</i> (in <i>Āpastamba Dharmasūtra</i> and <i>Baudhāyana Dharmasūtra</i> it is also referred to as <i>vārdhrānasa</i> ; according to Haradatta, a commentator of <i>Āpastamba Dharmasūtra</i> , it means a kind of bird having the nose resembling leather, ¹² Banerji ¹³ maintains that it may mean rhinoceros or old goat or bull or a type of bird),	twelve years	3.217b
(k)	<i>mahāsālka</i> (a type of fish with large scales: <i>Tor tor</i>),	indefinite period	3.272a
(l)	<i>khadga</i> (rhinoceros: <i>Rhinoceros unicornis</i>),	do	3.272a
(m)	<i>lehāmiṣa</i> (red meat).	-do-	-do-
3.	Cow's milk and sweetened rice-porridge,	one year	3.271a
4.	<i>madhu</i> (honey)	indefinite period	3.272a

DISCUSSION AND CONCLUSION

On the basis of the above tables, it may be said that the *Manu-saṃhitā* considers only a small number of plants and animals, belonging to the higher groups, as edible. It is interesting to note that the number of inedible plants and animals is larger than that of the edibles, and the catalogue of articles to be offered for the satisfaction of the manes is still longer. We may ask whether the consumability/nutritive value of the plants and animals, declared as inedibles by the text, was known to the author(s)/compiler(s) of *Manu-saṃhitā*? What could have been the guiding principle(s) behind permitting only a few plants and animals as normal food, while a large number of articles are considered as satisfactory for the manes?

Vegetal food : The text does not mention the names of the plants from which food materials may be obtained, but states generally that the roots, flowers and

fruits which easily mix with water should be eaten (5.10). What is meant by easy mixability with water, of roots, flowers and fruits? Does it mean the quality of easily getting boiled? Again, according to the text (6.13), a person should consume the roots, leaves, flowers and fruits of aquatic and terrestrial plants, and the fatty products of fruits (*snehāṃś ca phalasambhavān*) during *Vānaprastha*. Here also the text does not specify the plants. In connection with the offerings to the manes, the text (3.267) mentions *tila* (grains of sesame: *Sesamum indicum*), *vṛīhi* (paddy: *Oryza sativa*), *yava* (barley: *Hordeum vulgare*), and *māṣa* (a kind of pulse: *Phaseolus radiatus var. Roxburghii*). Paddy has been classified by the text (6.10) into two groups, autumnal (*sārada*) and vernal (*vāsanta*).

The text prohibits (5.5,19-21) consumption of fungus grown on soil or on a tree (*bhaumāni, kavakāni*), garlic (*laśuna : Allium sativum*), onion (*palāṇḍu: Allium cepa*), carrot (*grñjana: Daucus carota*), leaves (*śāka*) of *bhūstr̥ṇa* (*Cymbapogon sp.*), leaves of horse raddish (*śīgruka: Moringa oleifera*), and fruits of *śleṣmātaka* (*Dillenia indica* or *Cordia sp.*). It is rather puzzling why garlic, onion, carrot, and leaves of horse raddish are considered inedible by the text, when the medicinal values of all these is known to the *Āyurveda*? It may be conjectured that since medicines are required during illness only, that is for a short period, the text considers that these resources need not form part of regular diet. It is true that all the fungi are not edible, some are even poisonous.

Some mushrooms are rich in proteins and constitute delicious food of tribal people as well as non-tribals. But they are declared as inedible by the *Manu-saṃhitā*. Does it indicate that the nutritive value of these fungi is not known to the author(s) of the text? Garlic, onion and carrot are not essential food for sustenance, though they may serve as adjuncts or additives of food. On the other hand paddy, barley, storage roots, mature fruits, some edible flowers and pulses are sufficient for maintaining normal health.

It must be remembered that the *Manu-saṃhitā* recommends daily consumption of milk, curd and all products of curd. All these in addition to the vegetal foods mentioned above form balanced diet.

Fish: Regarding consumption of fish the attitude of the *Manu-saṃhitā* gives rise to some questions. It appears from the text (5.14; 5.15) that eating fish is

generally prohibited, but fish can keep the manes satisfied for a period of two months (3.268). Again, the text (5.16) names certain fishes which can be consumed by the *dvijas* after offering the same to the gods/manes. Explaining the verse no. 5.16, Kullūkabhāṭṭa, a commentator states that even for sustaining life one can consume these specified fishes. These instructions of the *Manu-sāṃhitā* bear similarities with the instructions of Kauṭilya. According to Kauṭilya, a king should allow the subjects to consume fish during famine, though normally none should be allowed to disturb the fishes.¹⁴ It appears that both Kauṭilya and Manu are aware of the nutritive value of the fishes, but still they do not like to include fish in normal diet. Further, the *Manu-sāṃhitā* mentions only a few fishes, though many types of fishes are available in India.

In justifying the prohibition of fish-eating, Manu states (5.15) that since fish consumes flesh of all animals, so by eating fish a man incurs the sins of eating meat of all animals (*yo yasya māṃsam aśnāti sa tanmāṃsāda ucyate / matsyādaḥ sarvamāṃsādas tasmān matsyān vivarjayet*). The text continues (5.33) that the animal, whose meat one consumes in this world, devours the person in the next world. It may be stated that the fishes eat the corpses of all animals. Thus, they may be carriers of greater number of diseases. So, it may be imagined that Manu prohibits consumption of fish under normal circumstances in consideration of public health. The instructions of Manu, however, prevent common men from consuming fish and meat except on some special/religious occasions, and thereby save the fishes and animals from wanton killing and thus help the conservation of biodiversity. Whatever may be the reason behind Manu's instructions, these are still effective in India; majority of the Hindus do not eat fish even today.

Meat: It appears from the instructions contained in the third and fifth chapters of the text that Manu is aware of the desire of the general people to eat meat of different types of aquatic, terrestrial and avian animals, and at the same time he is concerned about the conservation of animal diversity. Probably for these reasons it is stated in the *Manu-sāṃhitā* (5.36) that a *vipra* must not eat that meat which is not sanctified by *mantra*, but can eat the meat which was properly offered to gods/manes. On the other hand, according to the text (5.35), the man who does not eat the meat offered properly to gods and manes, becomes animal for subsequent twentyone rebirths (*niyuktas tu yathānyāyaṃ ye māṃsam nātti*

mānavah/ sa pretya paśutām yātī sambhāvān ekaviṃśatim). This text (3.268-271) contains a long list of animals which are believed to satisfy the manes for different lengths of time. The text (5.37) goes on to hold that, except for religious purpose(s), none should kill animal(s) (*na tveva tu vṛthā hantum paśum icchet kadācana*). The text (5.38) states that one who kills animal(s), for any other purpose gets killed for innumerable times (*yāvanti paśuromāṇi tāvatkṛtvo ha māraṇam/ vṛthāpaśughnaḥ prāpnoti pretya janmani janmani*). But, according to the text, if on an ordinary day one desires to eat flesh of any particular animal, then one should prepare a replica of the said animal either with *ghee* or with sweetmeat and should eat that. It, however, appears that the text considers the flesh of the following animals as edible: deer, spotted deer, black antelope, sheep, goat, boar, buffalo, tortoise, hare, porcupine, rhinoceros, *vādhriṇas*, and birds. Manu gives (5.131) a list of *suddha* (holy) meat. The inclusion of meat of rhinoceros and buffaloes in the list of edibles is rather perplexing; in modern India those are not consumed normally.

Milk and Curd : It appears from Tables I and III that the *Manu-samhitā* considers milk, curd and curd products as constituents of normal diet, and the text prefers cow's milk. According to the text (5.9), of all the wild animals the milk of buffalo only can be consumed. The text (5.6, 5.8) specially forbids the use of milk of certain categories of cows, camels, sheep and all one-hoofed animals. It may be mentioned here that milk and curd are items of normal menu of most of the Indians even now. Thus it appears that Manu's instruction in this regard has stood the test of time. Some deviations, however, may also be noticed among different human communities of modern India. The milk of goat is used now, mostly by poor people, for ailing and old persons, while the commonfolk of Rajasthan consume camel's milk also.

The prohibition by Manu of the use of milk of certain categories of cow (Table II) amply testifies to his concern about the welfare and conservation of diversity in that species. These preventive instructions are still being generally followed in India.

The range of dietary biodiversity in the *Manu-samhitā* includes both vegetarian and non-vegetarian items. The text, however, recommends a small number of edibles for usual food; of course, the same can provide balanced diet required for

normal growth. To satisfy the desire of common people to eat fish and meat of various animals, including aquatic, avian and wild fauna, Manu permits occasional consumption of some after offering the same to the manes/gods (Table III). Thus his instructions transform the status of those food items to religious articles and eating the same as holy act. This is an important cultural dimension of biodiversity. No new resource of food for modern people is indicated in the biodiversity permitted as diet by Manu. It appears that he, however, is concerned about the health and desire of common men, and he recognizes (5.29) that the living beings, having different qualities, constitute food for creatures of various trophic levels; at the same time he is also eager to protect the biodiversity from wanton killing for the sake of man's food. In conclusion, it may be said that the dietary biodiversity, as permitted by Manu, is sufficient to ensure normal health and growth of a man, and his various injunctions about the same help in the conservation of natural biodiversity.

ACKNOWLEDGEMENTS

The author is grateful to *Mahāmahopādhyāya* Dr. S.C. Banerji *Vidyāviśārada*, and Professor Samir Sarkar for going through the manuscript and amending the same. The author is also thankful to Professor Amalesh Chowdhury and Dr. B.N. Bhattacharyya for providing the common English and zoological equivalents of the Sanskrit names of the animals.

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