



1. Introduction

Biodiversity impacts the health of ecosystems across the world (1). India is among the 12 megadiverse countries representing up to 11% of the global flora (2). Biodiversity is being rapidly lost across India and the world due to overexploitation, habitat loss, and fragmentation, urbanization among others (3). This rapid decline has negatively affected the population of wild flora and the daily lives of tribal communities that still depend on them(4). Chhattisgarh state has one of the highest tribal populations in India among which Gond community are prominent. The Gonds have an extensive awareness on the sustainable use of wild plants and land management for eg. Sacred groves. Sacred groves are patches of trees on forest land that have been protected through the ages by indigenous communities as part of their socio-cultural practices. However, research conducted to date has mostly focused on the medicinal plant knowledge of these communities (5). Therefore this study is an enquiry on understanding ethnobotany of wild edible plants and how their knowledge could be used for biodiversity conservation

2. Aims

- Ethnobotany and biodiversity management of wild edible plants by Gond community
- Identification of sacred groves and sustainable harvesting practices

3. Methods

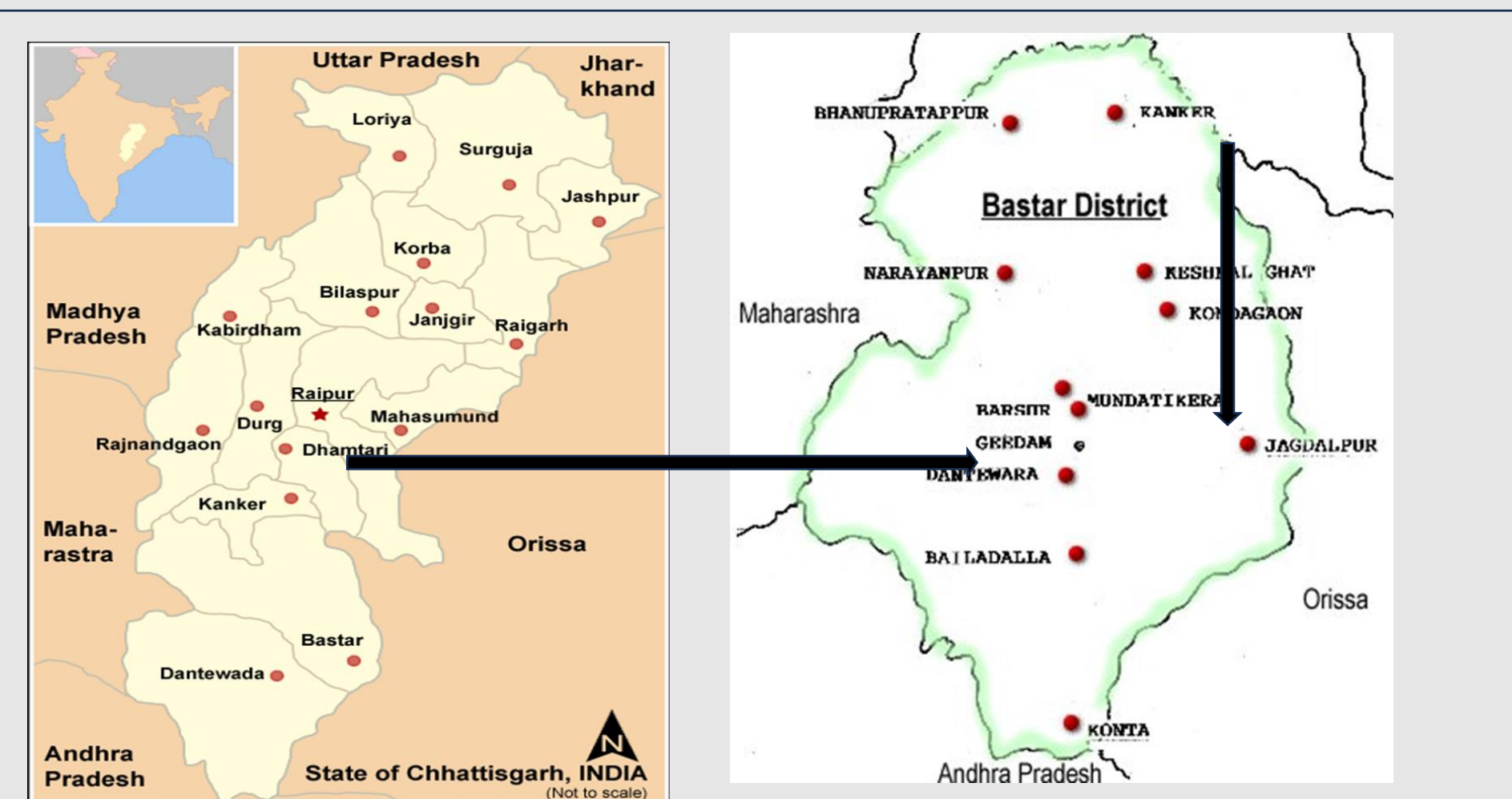


Fig 1: Study area, Keshkal, Chhattisgarh, India. The arrow denotes area of interviews conducted

- A mixed-methods approach was applied
- Sampling involved visits to randomly selected villages
- Key informants of the community were selected using snowball sampling
- Five Focus group discussions in 5 villages with 10 participants each was conducted to understand the perspective of the community
- Semi-structured interviews of 50 randomly selected (25 men and 25 women) locals was conducted to document traditional harvesting practices of wild edible plants



Fig 2: Interviews with Gond community

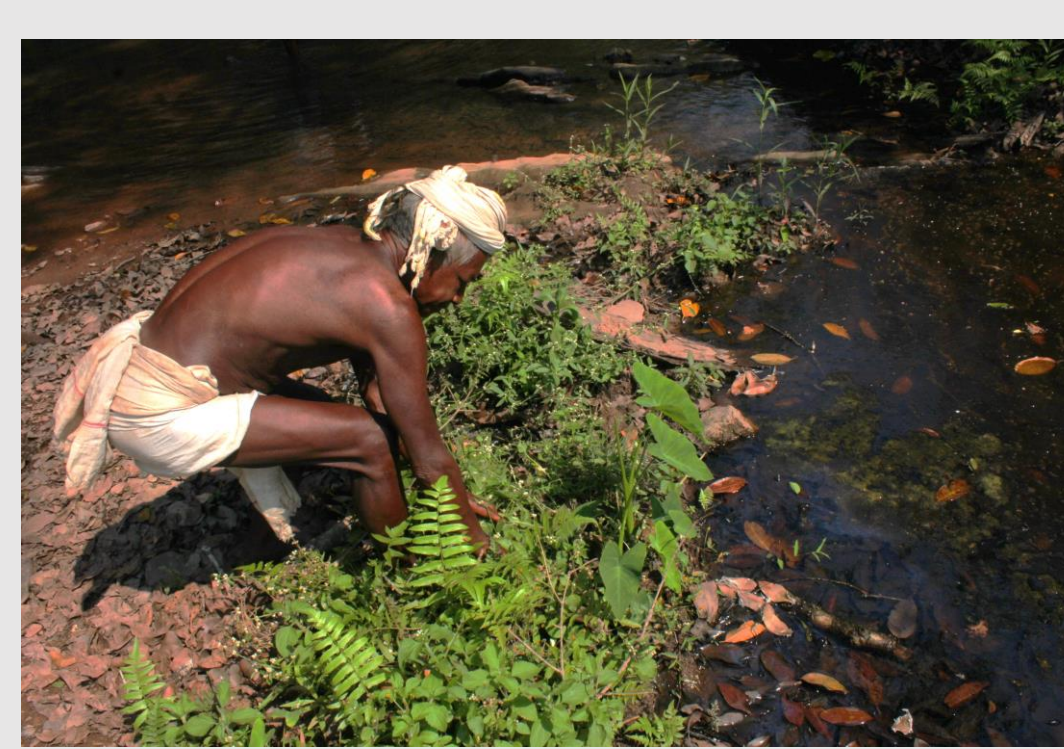


Fig 3: Documentation of harvesting of *Cassia tora L.*

- The respondents were Gond tribals of different age groups and were asked questions like : What are the wild edible plants you consume?, how do you harvest the plants consumed?
- Transect walks were conducted to document sacred groves in the region
- Herbarium reference collection: specimens were deposited at a herbarium and taxonomically identified.

4. Results

- The participants use 100 wild edible plants which include leafy vegetables, tubers, fruits, and flowers.
- Species-specific sustainable harvesting is practiced and various methods of preparation exists for tuberous plants (17 species)
- Fifty sacred groves across the study area were identified

List of Few wild edible plants documented

Sl.no	Local name	Scientific name
1	Kaata bhaji ((h))	<i>Amaranthus spinosus L.</i>
2	Paatur bhaji	<i>Alternanthera sessilis L.</i>
3	Singhadi	<i>Bauhinia vahlii Wight & Arn.</i>
4	Chironji	<i>Buchanania angustifolia Roxb.</i>
5	Vallekh (semal)	<i>Bombax ceiba L.</i>
6	Siliyari bhaji	<i>Celosia argentea L.</i>
7	Wadangun peng (Vadgud)	<i>Celastrus paniculatus Willd.</i>
8	Adchundri/Bhalutundri	<i>Cissampelos pareira L.</i>
9	Michkayang	<i>Dillenia pentagyna Roxb.</i>
10	Nalli - (amla)	<i>Embilca officinalis Gaertn.</i>
11	Pikdi	<i>Ficus religiosa L.</i>
12	Shivna Kudsi	<i>Gmelina arborea L.</i>
13	Saja	<i>Terminalia elliptica Roxb.</i>
14	Mahua	<i>Madhuca indica Gmel.</i>
15	Mohti bhaji	<i>Rivea hypocrateriformis Choisy.</i>
16	Jeevla pungar	<i>Indigofera pulchella Roxb.</i>
17	Chaati bhaji	<i>Polygonum plebeium R.br</i>
18	Kevti	<i>Ventilago calyculata Tulasne.</i>
19	Hitoom	<i>Woodfordia fruticosa Salisb.</i>
20	kangal kusir	<i>Ziziphia rugosa Lam.</i>



Fig 4: *Diospyros melanoxylon*



Fig 5: *Dioscorea pentaphylla*

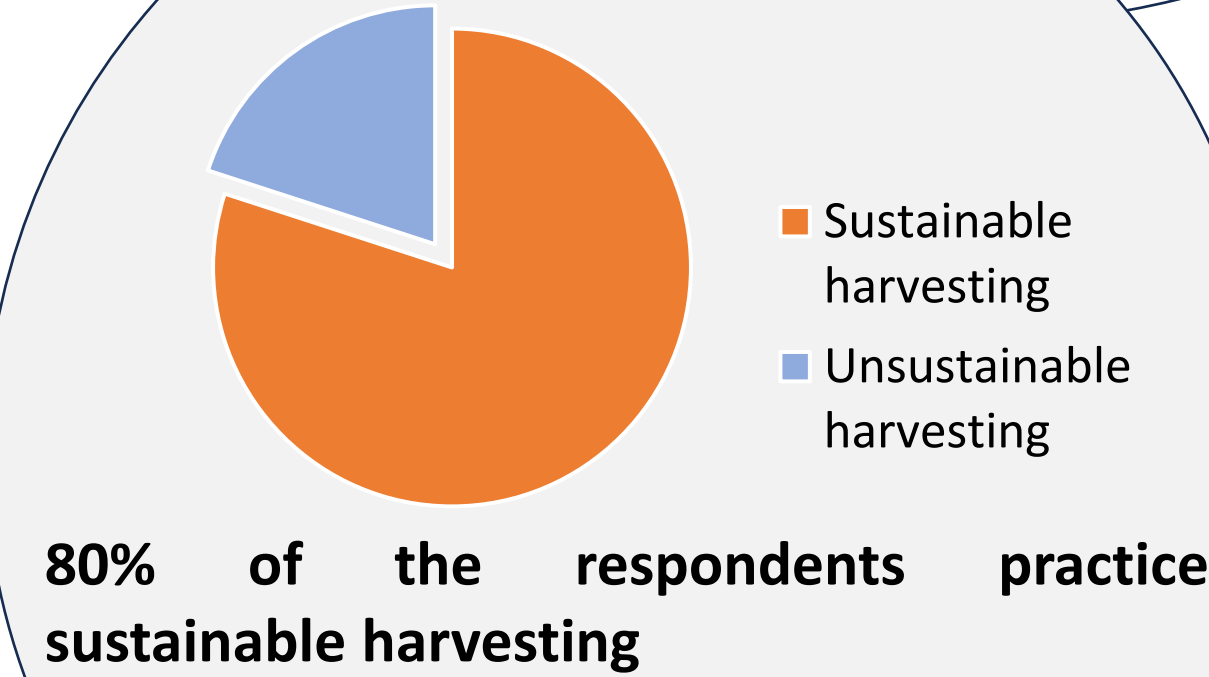


Fig 6: *Woodfordia fruticosa*



Fig 7: *Schleicheria oleosa*

HARVESTING TECHNIQUES



Some of the highly consumed and sustainably harvested wild edible plants include *Cassia tora L.*, *Dioscorea bulbifera L.*, *Dioscorea puber BI*, *Diospyros peregrina (Gaertn.) Gurke*, *Dioscorea pentaphylla L.*, *Dioscorea oppositifolia L.*, *Schleicheria oleosa (Lour.) oken*, *Diospyros melanoxylon Roxb.* and *Xylia xylocarpa (Roxb.) Taub.*

5. Conclusion

- The Gond tribal community in the study area has extensive knowledge of the use and sustainable harvesting techniques about wild edible plants.
- The practice of protecting forest lands as sacred patches increases the chances of the availability of wild edible plants
- Further conservation studies are needed related to threats on wild edible plants and sacred groves



Sacred groves among farmlands protected for hundreds of years sustain the wild edible plants population

Acknowledgments

We are thankful to the study participants. This study was funded by the Internal Grant Agency (IGA FTZ, 20233114) and mobility funds of the Faculty of Tropical AgriSciences, CZU, Prague.

References

- (1) Cardinale, B. J., Duffy, J. E., Gonzalez, A., Hooper, D. U., Perrings, C., Venail, P., Narwani, A., Mace, G. M., Tilman, D., Wardle, D. A., Kinzig, A. P., Daily, G. C., Loreau, M., Grace, J. B., Larigauderie, A., Srivastava, D. S., & Naeem, S. (2012). Biodiversity loss and its impact on humanity. *Nature*, 486(7401), 59–67. doi.org/10.1038/nature11148
- (2) Chitale, V. S., Behera, M. D., & Roy, P. S. (2014). Future of Endemic Flora of Biodiversity Hotspots in India. *PLoS ONE*, 9(12), e115264. DOI:10.1371/journal.pone.0115264
- (3) Gadgil, M., Berkes, F., & Folke, C. (2021). Indigenous knowledge: From local to global. *Ambio*, 50(5), 967–969. DOI:10.1007/s13280-020-01478-7
- (4) Pimm, S. L. (2021). What is biodiversity conservation? *Ambio*, 50(5), 976–980. DOI:10.1007/s13280-020-01399-5(5)
- (5) Tirkey, Vivek Kumar, R.L.S. Sikarwar & S.K. Jain (2006) - Ethnobotanical research in Chhattisgarh – A conspectus. *Ethnobotany Vol. 18*, 67-76