

(IV) Host plants of Forest Parasitic Angiosperms of Odisha, India: Boon and Bane

Parasitic angiosperms are plants that derive their nutrients by connecting to and extracting resources from host plants (Sahu *et al.*, 2018). These unique plants have evolved to thrive in various environments, including forests, where they play complex roles in shaping ecosystem dynamics (Mishra *et al.*, 2022; Mahendru *et al.*, 2022). Odisha, a state in eastern India, is home to a diverse range of flora, including parasitic plants (Lyngdoh *et al.*, 2023). They have medicinal and ecological values (Lyngdoh *et al.*, 2023). Understanding the relationships between parasitic plants and their hosts is essential to understand plant-plant relationship (Tesitel *et al.*, 2021; Bouwmeester *et al.*, 2021). Despite their significant medicinal importance (Jaiswal *et al.*, 2021) and ecological role, the host plants of parasitic angiosperms in India, particularly in Odisha, remain largely undocumented. Therefore, an attempt has been made to enumerate the host plants of parasitic angiosperms of Odisha state through field survey. Present study aims to bridge this knowledge gap by identifying and documenting the host plants of forest parasitic angiosperms in Odisha state, providing valuable insights into the ecological interactions and conservation implications of these fascinating plants.

Present study was conducted in selected districts of Odisha state to identify and document the host plants of forest parasitic angiosperms. The study was carried out during 2023-2025 in Angul, Cuttack, Deogarh, Dhenkanal, Kalahandi, Keonjhar, Khordha, Mayurbhanj, Nayagarh, Puri, Sambalpur, and Sundargarh districts. The surveys were carried out in different seasons to ensure comprehensive data collection. Selected parasitic plants were identified using standard botanical keys and taxonomic literature by the authors (Sahu *et al.*, 2018). Host plants were identified using morphological characteristics, and their identities were confirmed using botanical keys and flora books (Saxena and Brahmam, 1994-1996). The herbarium specimen of *Cassytha filiformis* L. (APRFH 70), *Cuscuta reflexa* Roxb. (APRFH 161), *Dendrophthoe falcata* (L.f.) Ettingsh. (APRFH 48), *Macrosolen globosus* (Roxb.) Tiegh. (APRFH 79), *Scurrula parasitica* L. (APRFH 49), and *Viscum articulatum* Burm.f. (APRFH 159) were submitted to the Herbarium unit of Ambika Prasad Research Foundation, Odisha, India.

The present study revealed a diverse range of host plants associated with forest parasitic angiosperms in Odisha state, India. A total of 6 parasitic plant species were selected, belonging to 4 families. The most common parasitic plant species encountered in study areas were *Cassytha filiformis*, *Cuscuta reflexa*, and *Dendrophthoe falcata* (Table 1). 72 host plants of these parasitic species were noted down (Table 1). The most common host trees were *Mangifera indica*, *Shorea robusta*, and *Madhuca longifolia* (Table 1). It was noticed that overgrowth of parasitic plants slows down the growth of host trees. The medicinal uses of selected parasitic angiosperms have ethnomedicinal uses. *C. filiformis* stem paste is used to cure joint pain in Mayurbhanj district while *D. falcata* leaves are used to repel the stomach worm by the tribal communities of Sundargarh. Hence, they have medicinal uses as well as ecological threats, if overpopulation happened. The preference of parasitic plants for certain host species may be influenced by factors such as host plant chemistry, morphology, and nutritional status. The findings of present study have implications for forest management and conservation. Parasitic plants can have significant impacts on host plant populations, and their presence can be used as an indicator of forest health. Further research is needed to fully understand the ecological roles of parasitic plants in forest ecosystems and to develop effective management strategies.

The present study provides a comprehensive documentation of the host plants of forest parasitic plants in Odisha, India. The findings highlight the diversity of host-parasite relationships in forest ecosystems and emphasize the importance of considering these interactions in forest management and conservation strategies. The study contributes to our understanding of the complex relationships between parasitic plants and their hosts, and provides valuable insights for future research on the medicinal and ecological roles of parasitic plants in forest ecosystems. Overall, this study demonstrates the significance of parasitic plants in forest ecosystems and highlights the need for continued research on these fascinating angiosperms.

Table 1 : Host plants of selected forest Parasitic plants

Plant name	Districts	Host plant
<i>Cassytha filiformis</i> L. (Lauraceae) Plate 1e	Angul	<i>Chromolaena odorata</i> , <i>Clerodendrum infortunatum</i> , <i>Azadirachta indica</i> , <i>Lantana camara</i> and <i>Vachellia nilotica</i> .
	Cuttack	<i>Ipomoea carnea</i> , <i>Trewia nudiflora</i> , <i>Chromolaena odorata</i> , <i>Azadirachta indica</i> , <i>Calotropis gigantea</i> , <i>Glycosmis pentaphylla</i> , <i>Anacardium occidentale</i> , <i>Anogeissus acuminata</i> , <i>Benkara malabarica</i> , <i>Dalbergia sissoo</i> , <i>Simarouba glauca</i> , <i>Pithecellobium dulce</i> , <i>Hugonia mystax</i> and <i>Bauhinia acuminata</i> .
	Deogarh	<i>Aegle marmelos</i> , <i>Ipomoea carnea</i> <i>Clerodendrum infortunatum</i> and <i>Chromolaena odorata</i> .
	Dhenkanal	<i>Chromolaena odorata</i> , <i>Woodfordia fruticosa</i> and <i>Vitex negundo</i> .
	Kalahandi	<i>Vachellia nilotica</i> , <i>Calotropis gigantea</i> , <i>Aegle marmelos</i> , <i>Anogeissus acuminata</i> , <i>Mangifera indica</i> , <i>Lantana camara</i> , <i>Chromolaena odorata</i> and <i>Azadirachta indica</i> .
	Keonjhar	<i>Mangifera indica</i> , <i>Anogeissus acuminata</i> , <i>Vachellia nilotica</i> , <i>Samanea saman</i> , <i>Rubus elliptica</i> , <i>Tamarindus indica</i> , <i>Azadirachta indica</i> , <i>Albizia lebbek</i> , <i>Streblus asper</i> and <i>Vitex negundo</i> .
	Khordha	<i>Ziziphus mauritiana</i> , <i>Anogeissus acuminata</i> , <i>Bougainvillea spectabilis</i> , <i>Vitex negundo</i> , <i>Lantana camara</i> , <i>Combretum roxburghii</i> , <i>Carissa spinarum</i> , <i>Azadirachta indica</i> , <i>Jatropha gossypifolia</i> and <i>Vachellia nilotica</i> .
	Mayurbhanj	<i>Ziziphus mauritiana</i> , <i>Vitex negundo</i> , <i>Chromolaena odorata</i> , <i>Mimosa pudica</i> , <i>Ipomoea carnea</i> , <i>Senna occidentalis</i> , <i>Phyllanthus reticulatus</i> , <i>Diospyros melanoxylon</i> and <i>Clerodendrum infortunatum</i> .
	Nayagarh	<i>Azadirachta indica</i> , <i>Chromolaena odorata</i> , <i>Alangium salvifolium</i> , <i>Mikania micrantha</i> , <i>Bougainvillea spectabilis</i> , <i>Anogeissus acuminata</i> , <i>Ipomoea carnea</i> and <i>Vachellia nilotica</i> .
	Puri	<i>Eugenia roxburghii</i> , <i>Casuarina equisetifolia</i> and <i>Mikania micrantha</i>
<i>Cuscuta reflexa</i> Roxb. (Convolvulaceae) Plate 1b	Sambalpur	<i>Vitex negundo</i> and <i>Chromolaena odorata</i> .
	Sundargarh	<i>Vitex negundo</i> , <i>Mallotus philippensis</i> , <i>Alstonia scholaris</i> , <i>Shorea robusta</i> , <i>Schleichera oleosa</i> , <i>Ziziphus mauritiana</i> , <i>Woodfordia fruticosa</i> and <i>Cucurbita</i> species.
	Angul	<i>Chromolaena odorata</i> , <i>Clerodendrum infortunatum</i> , <i>Azadirachta indica</i> , <i>Lantana camara</i> and <i>Vachellia nilotica</i> .
	Cuttack	<i>Anogeissus acuminata</i> , <i>Anacardium occidentale</i> , <i>Benkara malabarica</i> , <i>Dalbergia sissoo</i> , <i>Lantana camara</i> , <i>Mangifera indica</i> , <i>Mikania micrantha</i> and <i>Mangifera indica</i> .
	Deogarh	<i>Ziziphus mauritiana</i> , <i>Vitex negundo</i> , <i>Chromolaena odorata</i> , <i>Mimosa pudica</i> , <i>Sida acuta</i> , <i>Diospyros melanoxylon</i> and <i>Clerodendrum infortunatum</i> .
	Dhenkanal	<i>Dalbergia sissoo</i> , <i>Senna occidentalis</i> , <i>Sida acuta</i> , <i>Ageratum conyzoides</i> , <i>Chromolaena odorata</i> and <i>Lantana camara</i> .
	Kalahandi	<i>Vachellia nilotica</i> , <i>Calotropis gigantea</i> , <i>Aegle marmelos</i> , <i>Anogeissus acuminata</i> , <i>Shorea robusta</i> , <i>Chromolaena odorata</i> and <i>Clerodendrum infortunatum</i> .
	Kendrapara	<i>Vitex negundo</i> , <i>Ricinus communis</i> , <i>Ziziphus mauritiana</i> , <i>Terminalia catappa</i> , <i>Calotropis gigantea</i> , <i>Ipomoea carnea</i> , <i>Glycosmis pentaphylla</i> , <i>Clerodendrum infortunatum</i> , <i>Streblus asper</i> , <i>Jatropha gossypifolia</i> , <i>Mikania micrantha</i> , <i>Senna siamea</i> , <i>Mimosa pudica</i> , <i>Acacia auriculiformis</i> , <i>Acanthus ilicifolius</i> , <i>Vigna mungo</i> and <i>Azadirachta indica</i> .
	Keonjhar	<i>Vitex negundo</i> , <i>Mangifera indica</i> , <i>Anogeissus acuminata</i> , <i>Vachellia nilotica</i> and <i>Samanea saman</i> .
	Khordha	<i>Ageratum conyzoides</i> , <i>Azadirachta indica</i> , <i>Calotropis gigantea</i> , <i>Carissa spinarum</i> , <i>Combretum roxburghii</i> , <i>Crotalaria pallida</i> , <i>Jatropha gossypifolia</i> , <i>Lantana camara</i> and <i>Vachellia nilotica</i> .

Plant name	Districts	Host plant
	Mayurbhanj	<i>Ziziphus maruntiana</i> , <i>Anogeissus acuminata</i> , <i>Bougainvillea spectabilis</i> , <i>Vitex negundo</i> , <i>Lantana camara</i> , <i>Combretum roxburghii</i> , <i>Azadirachta indica</i> , <i>Chromolaena odorata</i> and <i>Jatropha gossypifolia</i> .
	Nayagarh	<i>Azadirachta indica</i> , <i>Chromolaena odorata</i> , <i>Alangium salvifolium</i> , <i>Mikania micrantha</i> , <i>Bougainvillea spectabilis</i> , <i>Vachellia nilotica</i> and <i>Azadirachta indica</i> .
	Puri	<i>Casuarina equisetifolia</i> , <i>Lantana camara</i> , <i>Mikania micrantha</i> , <i>Anogeissus acuminata</i> and <i>Clerodendrum infortunatum</i> .
	Sundargarh	<i>Anogeissus acuminata</i> , <i>Chromolaena odorata</i> , <i>Cucurbita</i> species, <i>Mallotus philippensis</i> , <i>Shorea robusta</i> , <i>Syzygium cumini</i> , <i>Glochidion lanceolarium</i> , <i>Vitex negundo</i> , <i>Alstonia scholaris</i> , <i>Annona squamosa</i> and <i>Bougainvillea spectabilis</i> .
<i>Dendrophthoe falcata</i> (L.f.) Ettingsh. (Loranthaceae) Plate 1c	Angul	<i>Mangifera indica</i> , <i>Tectona grandis</i> and <i>Madhuca longifolia</i> .
	Cuttack	<i>Mangifera indica</i> , <i>Bombax ceiba</i> , <i>Ficus religiosa</i> , <i>Ficus benghalensis</i> , <i>Holoptelea integrifolia</i> , <i>Shorea robusta</i> and <i>Tectona grandis</i> .
	Deogarh	<i>Shorea robusta</i> .
	Dhenkanal	<i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i> , <i>Shorea robusta</i> , <i>Mangifera indica</i> and <i>Tectona grandis</i> .
	Kalahandi	<i>Diospyros melanoxylon</i> , <i>Madhuca longifolia</i> , <i>Buchanania lanzan</i> , <i>Mangifera indica</i> , <i>Schleichera oleosa</i> , <i>Lannea coromandelica</i> and <i>Shorea robusta</i> .
	Keonjhar	<i>Mangifera indica</i> , <i>Shorea robusta</i> , <i>Tectona grandis</i> , <i>Careya arborea</i> , <i>Diospyros melanoxylon</i> and <i>Bombax ceiba</i> .
	Khordha	<i>Mangifera indica</i> and <i>Bombax ceiba</i> .
	Maurbhanj	<i>Shorea robusta</i> , <i>Buchanania lanzan</i> , <i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i> , <i>Vachellia leucophloea</i> , <i>Anogeissus latifolia</i> , <i>Vitex negundo</i> , <i>Terminalia bellirica</i> , and <i>Croton roxburghii</i> .
	Nayagarh	<i>Mangifera indica</i> & <i>Ficus religiosa</i>
	Puri	<i>Mangifera indica</i> and <i>Eucalyptus citriodora</i> .
	Sambalpur	<i>Shorea robusta</i> , <i>Mangifera indica</i> , <i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i> , <i>Buchanania lanzan</i> and <i>Tectona grandis</i> .
	Sundargarh	<i>Shorea robusta</i> , <i>Buchanania lanzan</i> , <i>Lagerstroemia parviflora</i> , <i>Terminalia bellirica</i> , <i>Careya arborea</i> , <i>Xylia xylocarpa</i> , <i>Madhuca longifolia</i> and <i>Bombax ceiba</i> .
<i>Macrosolen globosus</i> (Roxb.) Tiegh. (Loranthaceae)	Sundargarh	<i>Madhuca longifolia</i>
<i>Scurrula parasitica</i> L. (Loranthaceae) Plate 1d	Sundargarh	<i>Mangifera indica</i> , <i>Madhuca longifolia</i> , <i>Shorea robusta</i> , <i>Diospyros melanoxylon</i> , <i>Buchanania lanzan</i> , <i>Schleichera oleosa</i> , <i>Woodfordia fruticosa</i> and <i>Acacia auriculiformis</i> .
	Mayurbhanj	<i>Mangifera indica</i> , <i>Madhuca longifolia</i> , <i>Shorea robusta</i> , <i>Diospyros melanoxylon</i> , <i>Buchanania lanzan</i> and <i>Schleichera oleosa</i> .
<i>Viscum articulatum</i> Burm.f. (Santalaceae) Plate 1a	Angul	<i>Madhuca longifolia</i> and <i>Mangifera indica</i> .
	Cuttack	<i>Mangifera indica</i> and <i>Shorea robusta</i> .
	Deogarh	<i>Shorea robusta</i> and <i>Buchanania lanzan</i> .
	Dhenkanal	<i>Shorea robusta</i> , <i>Mangifera indica</i> , <i>Diospyros melanoxylon</i> , <i>Tectona grandis</i> and <i>Madhuca longifolia</i> .
	Kalahandi	<i>Madhuca longifolia</i> , <i>Diospyros melanoxylon</i> , <i>Syzygium cumini</i> , <i>Buchanania lanzan</i> , <i>Mangifera indica</i> , <i>Schleichera oleosa</i> and <i>Shorea robusta</i> .
	Keonjhar	<i>Diospyros melanoxylon</i> , <i>Mangifera indica</i> , <i>Shorea robusta</i> , <i>Madhuca longifolia</i> , <i>Careya arborea</i> and <i>Bombax ceiba</i> .
	Mayurbhanj	<i>Diospyros melanoxylon</i> , <i>Madhuca longifolia</i> , <i>Shorea robusta</i> and <i>Buchanania lanzan</i> .
	Nayagarh	<i>Alangium salvifolium</i> , <i>Diospyros melanoxylon</i> , <i>Madhuca longifolia</i> and <i>Mangifera indica</i> .
	Puri	<i>Mangifera indica</i> .
	Sambalpur	<i>Diospyros melanoxylon</i> and <i>Madhuca longifolia</i> .
	Sundargarh	<i>Buchanania lanzan</i> and <i>Shorea robusta</i> .



Plate 1 : Host plants of selected parasitic plants; **a)** *Viscum articulatum* on *Diospyros melanoxylon*, **b)** *Cuscuta reflexa* on *Acanthus ilicifolius*, **c)** *Dendrophthoe falcata* on *Buchanania lanzan*, **d)** *Scurrula parasitica* on *Shorea robusta*, **e)** *Cassytha filiformis* on *Benkara malabarica*

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