IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

"Exploring Agricultural Diversity and Sustainable Practices in Rural Home Gardens"

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Abstract

Agrobiodiversity refers to the diversity of plant species in agriculture and food systems. Rural home gardens are often rich in agrobiodiversity as they are usually maintained by small-scale farmers who grow a variety of crops for their own consumption and for sale in local markets.

The study of agrobiodiversity in rural home gardens is an important area of research as it provides insights into the diversity of traditional crops and their potential for improving food security and nutrition. It also helps to identify the factors that influence the maintenance and loss of agrobiodiversity, and the role that rural home gardens play in conserving and enhancing biodiversity Studies of agrobiodiversity in rural home gardens have shown that these gardens can contain a wide variety of crops, including traditional and indigenous species that are not commonly found in commercial agriculture. This diversity can contribute to food security by providing a source of diverse and nutritious foods, as well as income from the sale of surplus produce. rural home gardens are also vulnerable to threats such as land-use change, climate change, and the introduction of new crops and agricultural practices. Understanding the factors that contribute to the maintenance and loss of agrobiodiversity in these gardens can help to inform strategies for conserving and enhancing biodiversity in agricultural systems.

Keywords – Agricultural biodiversity, home gardens Medicinal, ornamental plants.

INTRODUCTION

The study of agrobiodiversity in rural home gardens is an important area of research that has the potential to contribute to sustainable agriculture, food security, and biodiversity conservation. (Das et al.,2005.) The study of agrobiodiversity in rural home gardens is essential for understanding the diversity of plant and animal species used in agriculture and for conserving and promoting sustainable use of unique crop and livestock varieties. One

example of a case study in the study of agrobiodiversity in rural home gardens is the Supe area in Tal-Baramati, Dist.-Pune, Maharashtra, India. The study of ethnobotany is closely related to agrobiodiversity in rural home gardens, as many of the plant species found in these gardens have cultural and medicinal significance to the communities that cultivate them (Gadekar et al.,2020.)

The practice of ethnobotany in rural home gardens involves conducting surveys and interviews with local farmers and community members to document the diversity and use of plant species in the area. These surveys can provide valuable information on the traditional knowledge and practices surrounding the use of plants for food, medicine, and cultural practices. (Gaikwad S.A. 2022) the study of ethnobotany and agrobiodiversity in rural home gardens is essential for understanding the relationships between people and plants, promoting the conservation and sustainable use of diverse plant species, and supporting the resilience and development of rural communities.

MATERIAL AND METHODS

This article is a survey of the home garden plants of Shri.Adv. Chandrashekhar Jagtap from Supe area, Tal-Baramati, Dist.-Pune.

1. **Size of home Garden-** The size of Mr. Adv. Chandrashekhar Jagtap home garden is 50 ft x 40 ft.
2. **Soil-** He has used black soil and loamy soil for his home garden.
3. **Organic Manures and Fertilizers-** He has used complete decomposed cow and goat dung, dry decomposedleaves as organic manures.
4. **Irrigation-** 1000 liters capacity water tank is available.and also have Borwell.Plants are watered everyday by water can or with help of pipe. Watering is done out as required.
5. **Weed, pest and disease Control-** He pulled out the weeds by hand and used a sickle and a khurapi to manage them. Neem oil spray for disease and pest management, cow urine. Plants with disease were frequently removed.
6. **Tools used for home Garden-** Sickle, Spade, garden scissors, sprinkler, pressure sprayer, Bamboo stakes, Seeds and saplings of vegetative propagated of superior good quality. (Kamble P.B. 2022)

RESULTS AND DISCUSSION

Table 1: Fruit plants cultivated in home garden

Sr.no	Botanical name	Common name	Family	Plant part used	Uses
1	*Annona reticulate L.*	Ramphal	Annonaceae	Fruit	Riped fruit edible
2	*Annona squamosa L.*	Sitaphal	Annonaceae	Fruit	Riped fruit edible
3	*Artocarpus heterophyllus Lam.*	Phanus	Moraceae	Fruit	Edible
4	*Carica papaya L.*	Papai	Carecaceae	Fruit	Edible vit A, fruit juice
5	*Carissa congesta Wight.*	Karvand	Apocyanaceae	Fruit	Edible fruit
6	*Citrullus lanatum (Thunb.) Mansf.*	Kalingad	Cucurbitaceae	Fruit	Edible pulp
7	*Citrus limon (L)Burm.*	Limbu	Rutaceae	Fruit	Edible fruit
8	*Citrus maxima*	Pummelo	Rutaceae	Fruit	Edible fruit
9	*Citrus sinesis (L).Osbeck.*	Mosambi	Rutaceae	Fruit	Edible fruit
10	*Cocus nucifera L.*	Naral	Arecaceae	Fruit	Edible fruit
11	*Emblica officinalis Gaertn.*	Avala	Euphorbiaceae	Fruit	Edible fruit, ayurvedic processed products.
12	*Madhuca longifolia (Koen)Maebr.*	Mahu	Sapotaceae	Fruit	Edible fruit
13	*Mangifera indica L.*	Amba	Anacardiaceae	Fruit	Unriped- pickles
14	*Manilcara zapota(L).Royan .*	Chiku	Sapotaceae	Fruit	Edible fruit
15	*Musa.paradisiaca L.*	Keli	Musaceae	Fruit	Edible fruit
16	*Psidium guajava L.*	Peru	Myrtaceae	Fruit	Edible fruit, jam jelly
17	*Punica granatum L.*	Dalimb	Punicaceace	Fruit	Edible fruit
18	*Syzygium cumini (L).Skeels.*	Jambhul	Myrtaceae	Fruit	Edible fruit
19	*Tamarindus indica L.*	Chinch	Caesalpinaceae	Fruit	Pulp edible

Table 2: Vegetables cultivated in home garden.

Sr.no	Botanical name	Common name	Family	Plant part used	Uses
1	*Abelmoschus esculentus (L.) Moench*	Bhendi	Malvaceae	Fruit	Vegetable
2	*Alium cepa L.*	Kanda	Liliaceae	Bulb, leaf	Vegetable
3	*Alium sativum L.*	Lasun	Liliaceae	Bulb, leaf	Vegetable
4	*Brassica oleraceae Var. botrytis L.*	Fulkobi	Brassicaceae	Inflorescence	Vegetable
5	*Brassica oleraceae Var. capitata L.*	PattaKobi	Brassicaceae	Leaf	Vegetable
6	*Cajanus cajana (L.) Millsp.*	Tur	Fabaceae	Pod	Vegetable
7	*Capsicum annum L.*	Mirchi	Solanaceae	Fruit	Vegetable
8	*Capsicum fruitencence L.*	Dhoblimirchi	Solanaceae	Fruit	Vegetable
9	*Coccinia grandis (L.) Voigt.*	Tondli	Cucurbitaceae	Fruit	vegetable
10	*Colocasia*	Aalu	Araceae	Leaf, petiole	Vegetable
11	*Cucumis sativus L.*	Valuk	Cucurbitaceae	Fruit	Vegetable
12	*Cyamopsis tetragonoloba L.*	Gawar	Fabaceae	Pod	Vegetable
13	*Daucas carota L.*	Gajar	Brassicaceae	Root	Vegetable
14	*Dolicus lablab (L.) Sweet*	Unhali ghevda	Fabaceae	Fruit	Vegetable
15	*Laganaria siceraria (Molina)Standn.*	Dudhibhopla	Cucurbitaceae	Fruit	Vegetable
16	*Luffa acutangla (L)Roxb.*	Dodka	cucurbitaceae	Fruit	Vegetable
17	*Luffa cylindrica (L.) M.Roem.*	Ghosali	Cucurbitaceae	Fruit	Vegetable
18	*Momordica charantia L.*	Karle	Cucurbitaceae	Fruit	Vegetable
19	*Musa paradisiaca L.*	Keli	Musaceae	Flower	Vegetable
20	*Phasiolus vulgaris L.*	Ghevda	Fabaceae	Pod	Vegetable
21	*Raphnus sativum L.*	Mula	Brassicaceae	Root , fruit	Vegetable

22	*Solanum nigrum L.*	Kanguni	Solanaceae	Fruit	Vegetable
23	*Solanum tuberosum L.*	Batata	Solanaceae	Tuber	Vegetable
24	*Solnum melangena L.*	Vanga	Solanaceae	Fruit	Vegetable
25	*Trichosanthus cucumeriana L.*	Padval	Cucurbitaceae	Fruit	Vegetable
26	*Vigna unguiculata (L.) Walp.*	Chavali	Fabaceae	Pod	Vegetable
27	*Vignea radiata Wilczek.*	Udid	Fabaceae	Pod	Vegetable

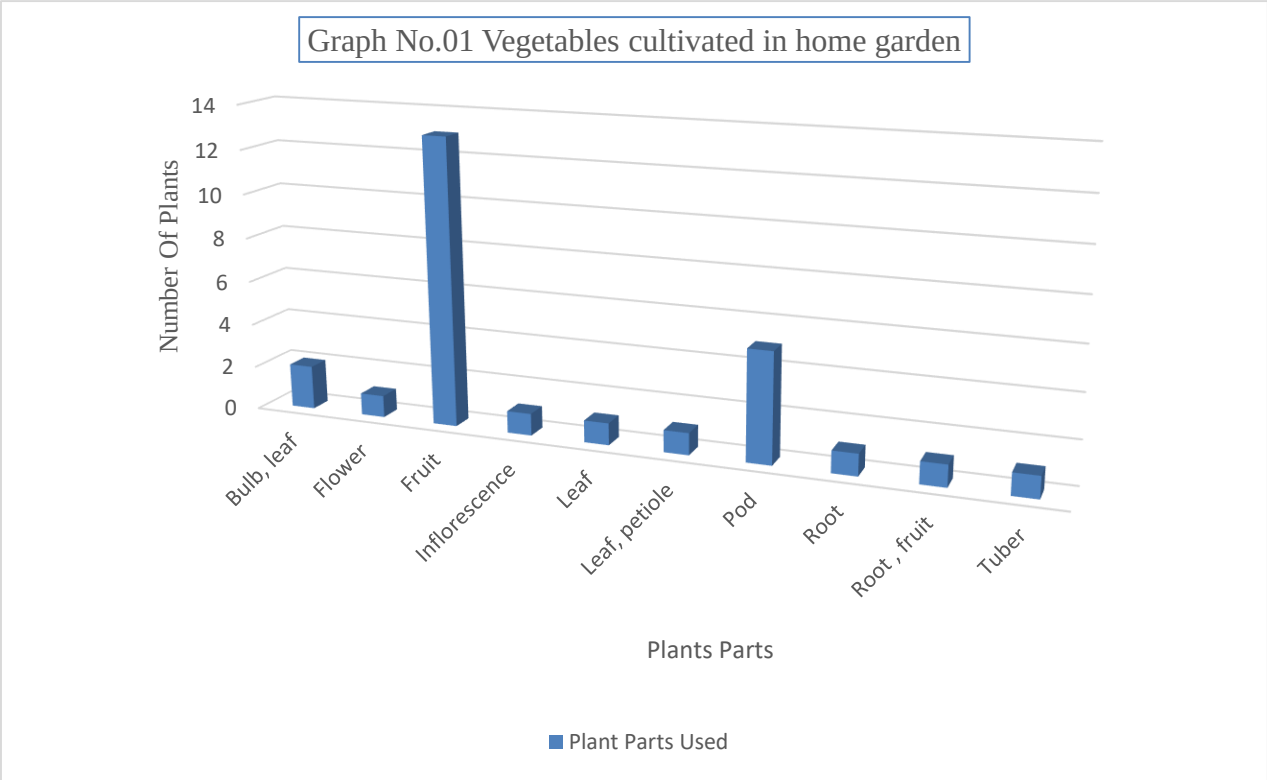

Table 3: Leafy vegetables cultivated in home garden

Sr.no	Botanical name	Common name	Family	Plant part used	Uses
1	*Solanum nigrum L.*	Kanguni	Solanaceae	Fruit	Vegetable
2	*Laganaria siceraria (Molina)Standn.*	Dudhibhopla	Cucurbitaceae	Fruit	Vegetable
3	*Solnum melangena L.*	Vanga	Solanaceae	Fruit	Vegetable
4	*Solanum tuberosum L.*	Batata	Solanaceae	Tuber	Vegetable
5	*Trichosanthus cucumeriana L.*	Padval	Cucurbitaceae	Fruit	Vegetable
6	*Luffa cylindrica (L.) M.Roem.*	Ghosali	Cucurbitaceae	Fruit	Vegetable
7	*Luffa acutangla (L)Roxb.*	Dodka	cucurbitaceae	Fruit	Vegetable
8	*Phasiolus vulgaris L.*	Ghevda	Fabaceae	Pod	Vegetable
9	*Vigna unguiculata (L.) Walp.*	Chavali	Fabaceae	Pod	Vegetable
10	*Vignea radiata Wilczek.*	Udid	Fabaceae	Pod	Vegetable
11	*Capsicum annum L.*	Mirchi	Solanaceae	Fruit	Vegetable
12	*Capsicum fruitencence L.*	Dhoblimirchi	Solanaceae	Fruit	Vegetable

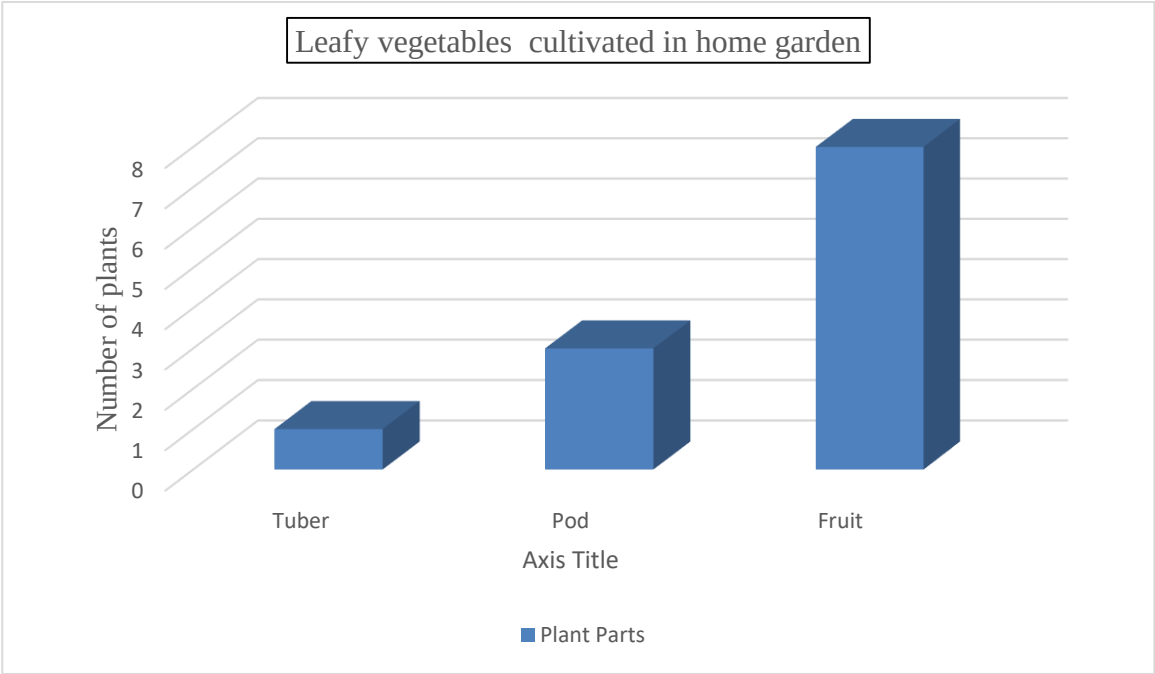

Table 4: Medicinal plants cultivated in home garden.

Sr.no	Botanical name	Common Name	Family	Part use	Medicinal Uses
1	*Aegle marmelos (L.) Corr.*	Bel	Rutaceae	Fruit, Leaf	Dysentery, Fever, Cold cough
2	*Azardirchta indica A.Juss.*	Kadu neem	Meliaceae	Leaf	Fever, reduce temperature
3	*Bauhinia racemosa Lamk.*	Apta	Caesalpinaceae	Leaf	Fever
4	*Caesalpina bonduc (L.) Roxb.*	Sagargota	Caesalpinaceae	Leaf	Jaundice
5	*Costus speciosus (Koen)J.E.Smith.*	Insulin plant	Costaceae	Leaf	Diabetic cure
6	*Curcuma longa L.*	Halad	Zinziberaceae	Rhizome	Wound healing
7	*Ficus racemosa L.*	Umber	Moriaceae	Root Sap	Urinary disorders
8	*Justicia adhatoda L.*	Adulasa	Acanthaceae	Leaf	Fever, Cough & Cold
9	*Kalanchoe pinnata (Lam.) Pers.*	Panphuti	Crassulaceae	Leaf	Kidney stone
10	*Ocimum basilicum L.*	Sabjya	Lamiaceae	Seed	Urinary disorders
11	*Ocimum sanctum L.*	Tulas	Lamiaceae	Leaf	Fever & cough
12	*Phyllanthus emblica L.*	Avala	Euphorbiaceae	Fruit	Digestion, Acidity
13	*Piper betle L.*	Khauche Pan	Piperaceae	Leaf	Cold &Cough
14	*Terminalia bellirica (Gaertn.) Roxb.*	Behda	Combretaceae	Fruit	Constipation
15	*Terminalia chebula Retz.*	Hirda	Combretaceae	Fruit	Constipation
16	*Tridex procubens L.*	Kurmudi	Asterceae	Leaf	Wound Healing

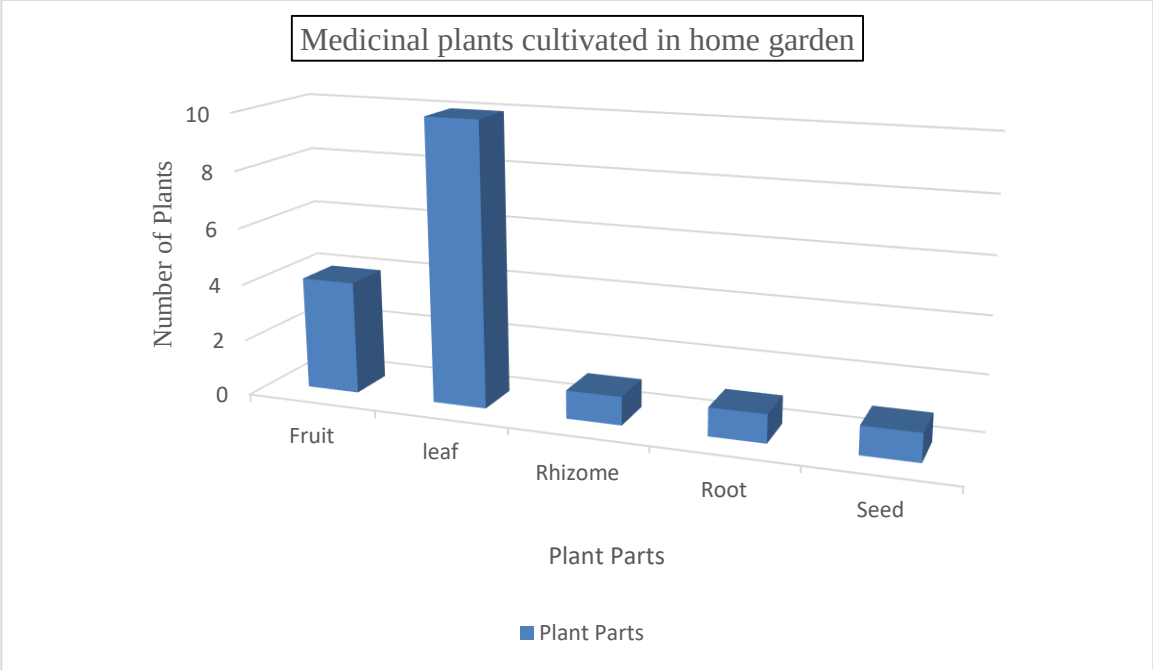

Table 5: Ornamental plants cultivated in home garden.

Sr.no	Botanical name	Common name	Family	Plant part used	uses
1	*Artabotrys odoratissimus Wight & Arn.*	Hirvachafa	Anonaceae	Flower	Ornamental
2	*Bougainvillea spectabilis (Wild)*	Kagdiphul	Nyctaginaceae	Flower	Ornamental
3	*Canna indica L.*	Kardal	Cannaceae	Flower	Ornamental
4	*Cathranthus roseus (L.) G.Don.*	Sadaphuli	Apocynaceae	Flower	Ornamental
5	*Cestrum nocturnum L.*	Ratrani	Solanaceae	Flower	Ornamental
6	*Chrysanthemum grandiflorum (Ramat.)Kitam.*	Shevanti	Asteraceae	Flower	Ornamental
7	*Clitoria ternatea L.*	Gokran	Fabaceae	Flower	Ornamental
8	*Crinum asiatium L.*	Lily	Liliaceae	Flower	Ornamental
9	*Crossandra infundibuliformis (L.) Nees*	Aboli	Acanthaceae	Flower	Ornamental
10	*Epiphyllum oxypetalum (DC.) Haworth*	Brahma kamal	Cactaceae	Flower	Ornamental
11	*Hibiscus rosa-sinensis L.*	Jaswand	Malvaceae	Flower	Ornamental
12	*Ipomea purpurea (L.) Roth*	Garvel	Convovulaceae	Flower	Ornamental
13	*Ixora coccinea L.*	Ixora	Rubiaceae	Flower	Ornamental
14	*Jasminium multiflorum (Burm. f.) Andrews*	Kunda	Oleaceae	Flower	Ornamental
15	*Jasminium sambac (L.) Aiton*	Jasmine	Oleaceae	Flower	Ornamental
16	*Jasminum sambac (L.) Aiton*	Mogra	Oleaceae	Flower	Ornamental
17	*Michelia champaca L.*	Pivla chafa	Magnoliaceae	Flower	Ornamental
18	*Nerium indicum Mill.*	Pivli kanher	Apocynaceae	flower	Ornamental
19	*Nyctanthes arbor-tristis L.*	Parijatak	Oleaceae	Flower	Ornamental
20	*Passiflora incarnate L.*	Krushna kamal	Passifloraceae	Flower	Ornamental
21	*Plumeria alba L.*	Pandhra chafa	Apocynaceae	flower	Ornamental
22	*Polyanthus tuberose L.*	Nishigandh	Amaryllidaceae	Flower	Ornamental
23	*Rosa indica L.*	Rose	Rosaceae	Flower	Ornamental
24	*Tagetus erecta L.*	Zendu	Asteraceae	Flower	Ornamental

Conclusion

In conclusion, the study of agrobiodiversity in rural home gardens is a crucial area of research that has important implications for both ecological and socioeconomic sustainability. Through the preservation and enhancement of agrobiodiversity, rural home gardens can contribute to a more resilient and sustainable agricultural system that benefits both households and communities. home gardens have many valuable medicinal, fruits, vegetable, and ornamental plants that are cultivated for the conservation of biodiversity and provide number of ecosystem services. In addition, it can save species from the risk of extinction and thus, home gardens can be considered a tool for the conservation of medicinal plants. It creates a healthy and pure atmosphere by improving air quality. Total documented species were used followed by fruits (19 species), flowers (24 species) vegetables (39species) Medicinal Plants (16 species). Ornamental plants (24 species).

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