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Ethnobotanical Study of Wild Vegetables Used By Rural Communities of Satna District, Madhya Pradesh, India

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Abstract:The present paper deals wild vegetable plants was carried out during 2014-15 following standard ethnobotanical methods for documentation of underexploited, non-conventional, traditional and indigenous wild vegetables for further studies leading to sustainable utilization of these resources to overcome malnutrition in vegetarian diet. During present study 25 species belonging to 18 families have been documented. Chenopodium album is the most common and popularly used wild vegetable followed by Ipomoea aquatica and Coccinea grandis in the study area. Seven species are reported as wild vegetable for the first time in India. Leaves and young stem are used in majority of the cases. Only 56% wild vegetables used in the study area are easily available, it means 44% wild vegetables are threatened to be lost if not conserved properly. The highly endangered wild vegetables in the study area are Abrus precatorius, Centella asiatica, Dioscorea bulbifera, and Solanum incanum.
Keywords: Wild vegetables, Rural communities, Ethnobotany, Satna district, Madhya Pradesh.

I. INTRODUCTION

In rural settlements where vegetable cultivation is not practiced and market supplies are not organized, local inhabitants depends on indigenous vegetables either cultivated by themselves or collected from wild (Mishra *et al.*, 2008). The traditional knowledge about indigenous wild vegetables is largely transmitted by oral tradition from generation to generation without any written record. Such practices are still prevalent among rural and tribal communities in many parts of the world (Mishra *et al.*, 2008; Binu, 2010 and Bhogaonkar *et al.*, 2010). The primitive men, through trial and error, have selected many wild edible plants and subsequently domesticated them (Kar, 2004). However, many wild vegetables traditionally consumed by local communities are underutilized. The nutritional value of these wild vegetables is high in comparison to commonly cultivated vegetables (Orech *et al.*, 2007). The wild vegetables are an important source for the supplementation of micronutrients in vegetarian diets (Agate *et al.*, 2000 and Odhav *et al.*, 2007). Survey of rural and tribal areas for documentation of underutilized wild vegetables is the first step in making suitable strategies for the conservation and sustainable utilization of these resources. Perusal of literatures reveals that Satna district is not studied for documenting underutilized wild vegetables. Keeping above views in mind present study was proposed to highlight the wild vegetables used by the rural communities.

II. MATERIAL AND METHODS

Satna is located between 81°15’ east longitude and 24°42’ north latitude and is situated on the Vindhyan plateau at the height of 318 m above msl. There are many river, viz., Satna, Tamas, Beehar, Asrawal and Simrawal, and most of the land has been irrigated by these rivers. The land becomes fertile due this irrigation facilities. There are a hills of Kaimore and Panna. In Satna district many minerals are found, due to this many industries are running. There are two big cement factory Satna and Maihar. The main tribes of Satna district are Kol, Gond, Mawasi, Panika and Khairwar.

A. Ethnobotanical Surveys and Collection of Data

Survey of rural areas of Satna district, Madhya Pradesh was conducted during 2013-2015 to collect information regarding wild vegetables and voucher specimen. Field works were conducted in randomly selected ten villages. Total 50 informants having age of 30 to 65 years were interviewed during present study. Information’s regarding the local names of plant species, growth forms, part(s) used, availability in natural resources, method of processing and vegetable preparation, method of collection, storage and conservation needs were carefully recorded. Methods of Martin (1995) were followed during the present study. Voucher specimens were collected with the help of informants and reconfirmed by other informant’s to ensure their local identity. Specimens were brought to the laboratory and preserved in the form of herbarium (Jain and Rao, 1967) identified with the help of pertinent literatures (Kanjilal, 1933; Duthie, 1960) and deposited in herbarium maintained at department of Botany for future references. The

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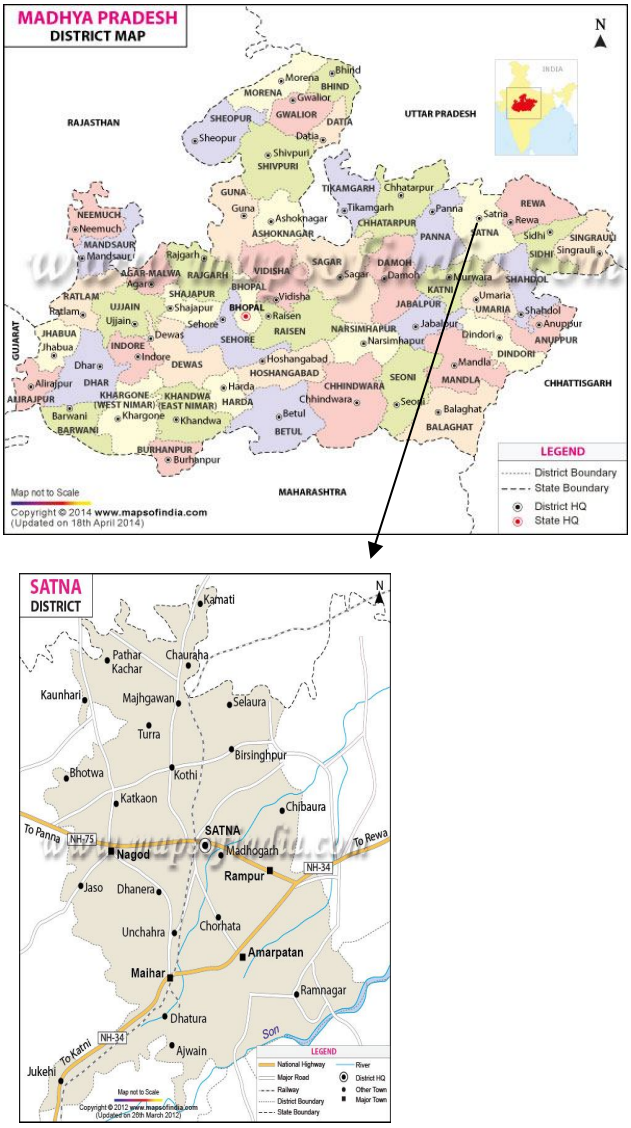
acquired data were compared with relevant literatures (Khan and Khan, 2004; Sinha and Valeria, 2005; Angami *et al.*, 2006; Kala, 2007; Mishra *et al.*, 2008; Khan *et al.*, 2008; Binu, 2010; Bhogaonkar *et al.*, 2010) to identify new claims.



III. RESULTS AND DISCUSSION

Results are given in Table 1. Twenty five wild plant species belonging to 18 families were found to be used as vegetables by the rural community of Satna district, Madhya Pradesh, India. Caesalpinaceae and Solanaceae are the highly represented families (Graph-1). Various Parts of *Basella alba*, *Boerhaavia diffusa*, *Chenopodium album*, *Ficus hispida*, *Ipomoea aquatica*, *Polygonum glabrum*, *Rumex dentatus*, and *Solanum incanum* are reported as wild vegetable for the first time in India. *Chenopodium album* is the most common and popularly used (9.83%) wild vegetable followed by *Ipomoea aquatica* and *Coccinea grandis* in the study area (Table 1). Leaves and young stem are used in majority of the cases (68%) followed by fruits (18%), flowers and tubers (7%). Only 56% wild vegetables use d in the study area are easily available, whereas, 28% are available with difficulty and 16% are hardly available in natural resources, it means 44% wild vegetables are threatened to be lost if not conserved properly. The highly endangered wild vegetables in the study area are *Abrus precatorius*, *Centella asiatica*, *Dioscorea bulbifera* and *Solanum incanum*. Majority of the wild vegetables of study area are herb (Graph - 2) which may be domesticated and cultivated easily in comparison to other growth forms.

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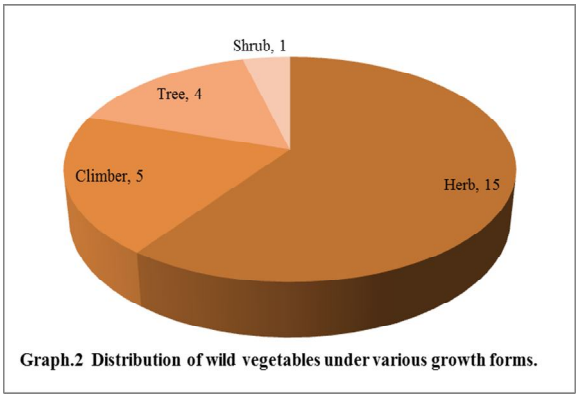
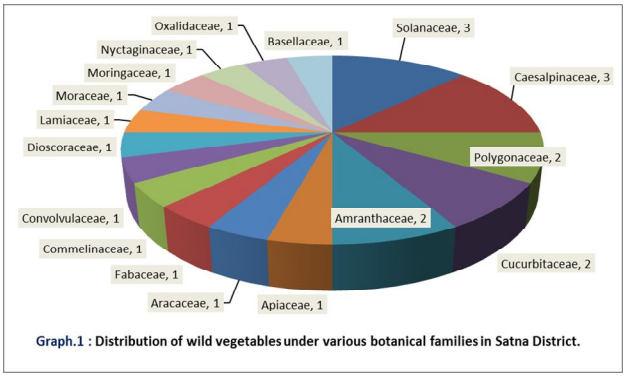


Graph.2 Distribution of wild vegetables under various growth forms.



Graph.1 : Distribution of wild vegetables under various botanical families in Satna District.

Table 1 : Underutilized indigenous wild vegetables of Satna district (M.P.)

S.No.	Botanical name, family and growth forms	Vernacular name/ parts used/ availability	Method of processing and vegetable preparation
1.	*Abrus precatorius* L., Fabaceae, Climber	Ghuguchi/ Leaves/ Hardly available	Young leaves are chopped into small pieces and fried in vegetable oil with potato. Salt and spices are added to taste.
2.	*Amaranthus spinosus* L., Amranthaceae, Herb	Katili chaurai/ Young leaves and stem/ Easily available	Young stem and leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
3.	*Amaranthus viridis* L., Amranthaceae, Herb	Chaurai/ Young leaves and stem/ Easily available	Young stem and leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
4.	*Amorphophallus companulatus* Bl., Aracaceae, Herb,	Sooran/ Leaves and Tuber/ Available with difficulty	Young leaves are chopped into small pieces, dipped in wet floor and fried in vegetable oil. Tubers are boiled with *Bamboos* leaves, peeled, macerated and salt and spices are added to taste.
5.	**Basella alba* L., Basellaceae, Climber	Poi/ Young leaves/ Available with difficulty	Young leaves are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
6.	*Bauhinia veriegata* L., Caesalpinaceae, Tree	Kachnar/ Flower bud/ Available with difficulty	Flower buds are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
7.	**Boerhaavia diffusa* L., Nyctaginaceae, Herb	Patherchatta/ Young leaves and stem/ Easily available	Young leaves and stem are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
8.	*Cassia fistula* Caesalpinaceae, Tree	Amaltaas/ Leaf/ Available with difficulty	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
9.	*Cassia tora* L., Caesalpinaceae, Herb	Chakwad/ Leaf/ Easily available	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.

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10.	*Centella asiatica* (L.) Urban., Apiaceae, Herb	Brahmi/ Leaves and young stem/ Hardly Available	Leaves and young stems are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
11.	**Chenopodium album* L., Chenopodeaceae, Herb	Bathua/ Young leaves and stem/ easily available	Young leaves are chopped into small pieces and boiled in water with pulses, also mixed in floor to make chapattis.
12.	*Coccinea grandis* (L.) Voigt., Cucurbitaceae, Climber	Kundru/ Fruits/ Available with difficulty	Unripe fruits are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
13.	*Commelina benghalensis* L., Herb, Commelinaceae	Bankatwa/ Leaf/ Easily available	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
14.	*Dioscorea bulbifera* L., Dioscoraceae, Climber,	Gainthi / Tuber and bulbils/ Hardly available	Tubers and bulbils are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
15.	**Ficus hispida* L., Moraceae, Tree	Goolar/ Fruits/ Easily available	Unripe fruits are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste. Fruits are also used to make pickle.
16.	**Ipomoea aquatica* Forsk., Convolvulaceae, Herb	Karemua/ Leaf and young stem/ Easily available	Young leaves and stem are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
17.	*Leucas aspera* Spreng., Lamiaceae, Herb	Gooma/ Young leaves/ Available with difficulty	Young leaves are chopped into small pieces and fried in vegetable oil. Salt and spices is added to taste.
18.	*Momordica dioca* L., Cucurbitaceae, Climber	Kheska/ Fruits/ Available with difficulty	Unripe fruits are chopped into small pieces and fried in vegetable oil. Salt and spices are added to taste.
19.	*Moringa oleifora* Lam., Moringaceae, Tree,	Sahijan/ Young leaves, flowers and Fruits/ Easily available	Young leaves and flowers are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste. Fruits are cut into small pieces and boiled in pulses. Fruits are also used to make pickle.
20.	*Oxalis corniculata* L., Oxalidaceae, Herb	Khatti buti/ Young leaves and stem/ Easily available	Young leaves stem and are masticated with salt to prepare paste locally known as chutney.
21.	*Physalish minima* L., Solanaceae, Herb	Rashbhari/ Young leaves/ Easily available	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
22.	**Polygonum glabrum* L., Polygonaceae, Herb	Janglei Chaurai / Young leaves/ Easily available	Young leaves are chopped into small pieces and fried in vegetable oil with potato. Salt and spices is added to taste.
23.	**Rumex dentatus* L., Polygonaceae, Herb	Panpalak/ Young leaves and stem/ Easily available	Young leaves are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.

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24.	**Solanum incanum* L., Solanaceae, Shrub	Banbhanta/ Fruits/ Hardly available	Unripe fruits are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.
25.	*Solanum nigrum* L., Solanaceae, Herb	Makoi/ Young leaves and stem/ Easily available	Young leaves and stem are chopped into small pieces and fried in vegetable oil with chopped potato. Salt and spices are added to taste.

The consumption of wild plants is one of the strategies, adopted by the local people for sustenance, is intrinsically linked to their strong traditional and cultural system and is inseparable. The indigenous communities continuously include wild edibles to their daily food intake and sales from the surplus add to their income. Simultaneously, an emphasis on the sustainable harvesting of wild edible plants will help enhance and maintain the region's biodiversity as well (Angami *et al.*, 2006 & Victoria *et al.*, 2006).

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REFERENCES

[1] Agate, V.V., K.V. Tariadi, S. Mangale and S.A. Chiplonkar 2000. Potential of traditionally cooked green leafy vegetables as a natural source for supplementation of eight micronutrients in vegetarian diets. J. Food. Comp. Anal. 13:885-891.

[2] Angami, A.P., R. Gajurel, R. Rethy, B. Singh and S.K. Kalita 2006. Status and potential of wild edible plants of Arunachal Pradesh. Indian J. Trad. Knowledge 5:541-550.

[3] Bhogaonkar, P.Y., R. Marathe Vishal and P.P. Kshirsagar 2010. Documentation of Wild Edible plants of Melghat Forest, Dist. Amravati, Maharashtra State, India. Ethnobot. Leaflets 14:751-758.

[4] Binu, S. 2010. Wild edible plants used by the tribals in Pathanamthitta district, Kerala. Indian J. Trad. Knowledge 9:309-312.

[5] Dovie, D.B.K., C.M. Shackleton and E.T.F. Witkowski 2007. Conceptualizing the human use of wild edible herbs for conservation in South African Communal Areas. J. Env. Manage. 84:146-156.

[6] Duthie, J.F. 1960. Flora of upper Gangetic plain and of the adjacent Shiwalic and Sub- Himalayan Tract. Botanical Survey of India, Calcutta.

[7] Grivetti, L.E. and V.M. Ogle 2000. Value of traditional food in meeting macro and micronutrient needs: The wild plant connection. Nutr. Res. Rev. 13:31-46.

[8] Haridarshan, K., L.R. Bhuyan and M.L. Deori 1990. Wild edible plants of Arunanchal Pradesh. Arunanchal Forest News 8:7-12.

[9] Jain, S.K. and R.R. Rao 1967. Handbook of field and herbarium methods. Today and Tomorrow printers and publishers, New Delhi.

[10] Jansen, V.R.W.S., S.L. Venter, T.H. Netschluvhi, Heever, E. van den, H.J. Vorster and J.A. de Ronde 2004. Role of indigenous leafy vegetables in combating hunger and malnutrition. South Afr. J. Bot. 70:52-59.

[11] Kala, C.P. 2007. Prioritization of cultivated and wild vegetables by the local people in the Uttaranchal hills of Indian Himalaya. Indian J. Trad. Knowledge 6:239-243.

[12] Kamal, A., I.Z. Ahmad and H. Islam 2010. Effects of cadmium toxicity on antioxidative defence system of Nigella sativa in different phases of seed germination. Fourth International Conference on Plants and Environmental Pollution. CSIR-National Botanical Research Institute, Lucknow, Utter Pradesh, India. p. 94. (Abstr.).

[13] Kanjilal, P.C. 1933. Forest flora of Pilibhit, Oudha, Gorakhpur and Bundelkhand. Govt. Printing Press, Allahabad.

[14] Khan, A.A. and Shabina Khan 2004. Ethnobotanical significance of wild poisonous plants of Amarkantak, district Shahdol (M.P.) India. Ad. plant Sci. 17(II): 435-438.

[15] Khan, A.A., Santosh Kumar Agnihotri, Manoj Kumar Singh and Ramesh Kumar Ahirwar 2008. Enumeration of certain angiospermic plants used by Baiga tribe for conservation of plant species. Plant Archives vol. 8 No. 1, pp. 289-291.

[16] Kumar, A., V.C. Pandey, D.D. Tewari and A.G. Singh 2013. Traditional uses of medicinal plants for dermatological healthcare management practices by the Tharu tribal community of Utter Pradesh, India. Gen. Res. Crop Eval. 60:203–224.

[17] Maikhuri, R.K., K.S. Rao and K.G. Saxena 2004. Bio prospecting of wild edibles for rural development in central Himalaya. Mount. Res. Develop. 24:110-113.

[18] Martin, G.J. 1995. Ethnobotany: A people and plant conservation manual. Chapman and Hall, London.

[19] Mishra, S., R.K. Maikhuri, C.P. Kala, K.S. Rao and K.G. Saxena 2008. Wild leafy vegetables: A study of their subsistence dietetic support to the inhabitants of Nanda Devi Biosphere Reserve, India. J. Ethnobio. Ethnomed. 4:15.

[20] Narayanan, M.K.R. and N.A. Kumar 2007. Gendered knowledge and changing trends in utilization of wild edible greens in Western Ghats, India. Indian J. Trad. Knowledge 6:204-216.

[21] Odhav, B., S. Beekrum, U.S. Akula and H. Baijnath 2007. Preliminary assessment of nutritional value of traditional leafy vegetables in Kwazulu-Natal, South Africa. J. Food Comp. Anal. 20:430-435.

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[22] Ogoye-Ndegwa, C. and J. Aagard-Hensen 2003. Traditional gathering of wild vegetables among the Luo of Western Kenya - A nutritional anthropology project. J. Ecol. Food Nutr. 42:69-89.

[23] Orech, F. O., J. Aagaard-Hansen and H. Friis 2007. Ethnoecology of traditional leafy vegetables of the Leo people of Bondo district, Western Kenya. Internat. J. Food Sci. Nutr. 58:555- 560.

[24] Rahman, M.K., A. Mangal and D. Depale 2010. Ayurvedic medicinal plants response in seed germination and vegetative growth to a biotic stress: induced heavy metal zinc and its Ayurvedic preparation i.e. Yasad Bhasm, Fourth international Conference on Plants and Environmental Pollution. CSIR-National Botanical Research Institute, Lucknow, Utter Pradesh, India. p. 89. (Abstr.).

[25] Reddy, K.N., C. Pattanaik, C.S. Reddy and V.S. Raju 2007. Traditional knowledge on wild food plants in Andhra Pradesh, India. Indian J. Trad. Knowledge 6:223-229.

[26] Setalaphruk, C. and L. L. Price. 2007. Children's traditional ecological knowledge of wild food resources: A case study in a rural village in North-eastern Thailand. J. Ethnobio. Ethnomed. 3:33.

[27] Shackleton, M.B., C.M., Dzerefos, C.M. Shackleton and F.R. Mathabala 1998. Use and trading of wild edible herbs in Central Lowveld Savannah region, South Africa. Econ. Bot. 52:251-259.

[28] Sinha, R. and V. Lakara 2005. Wild vegetable food plants of Orissa. Indian J. Trad. Knowledge 4:246-252.

[29] Victoria R.G., H. Tomas, W. Vincent, W. Leonard and D. Winkie 2006. Cultural, practical and economicvalue of wild plants: A quantitative study in the Bolivian Amazon. Economic Botany, 60(1) : 62-74.

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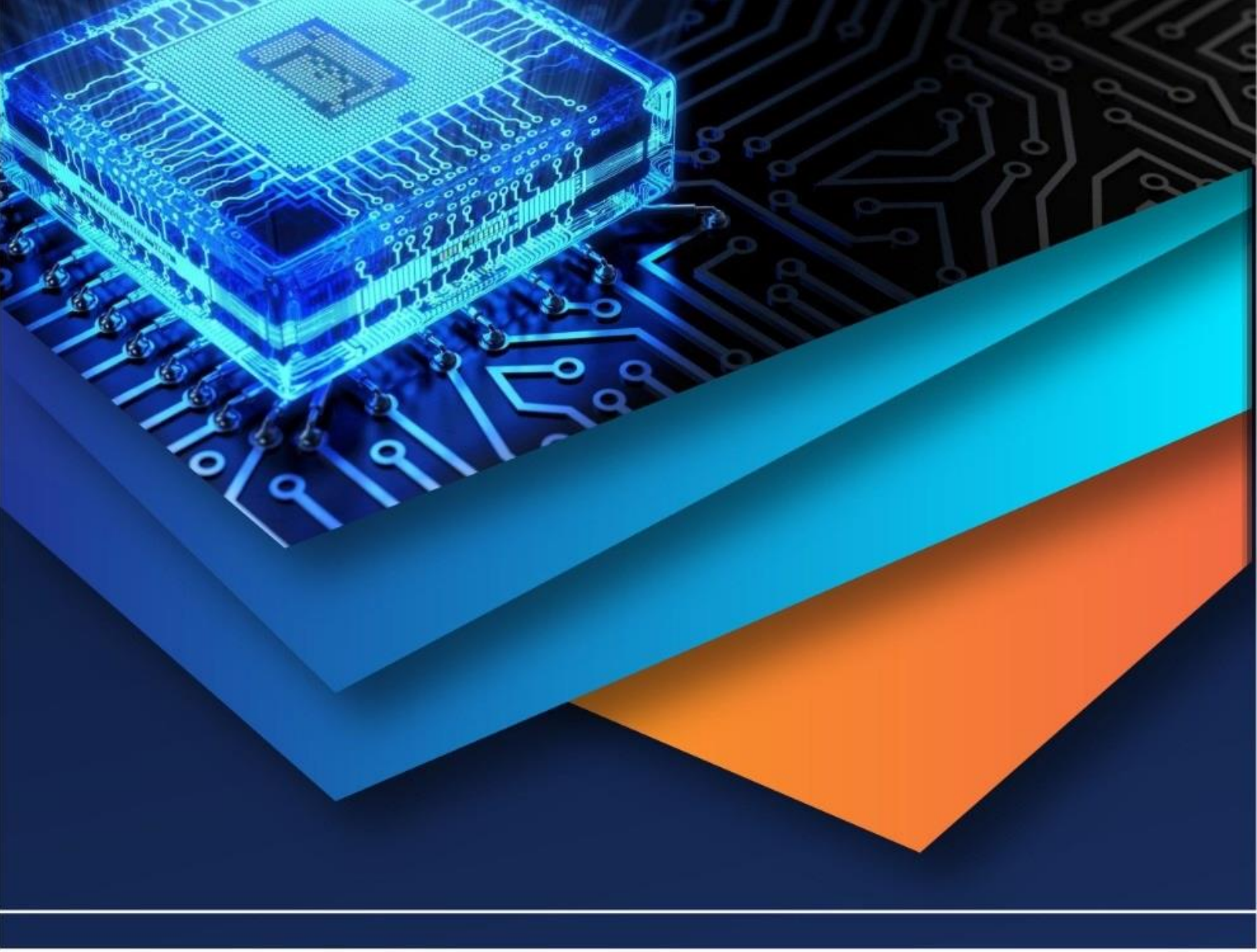

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