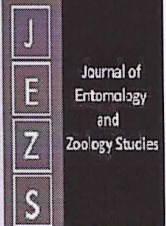


Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2018; 6(1): 375-379
© 2018 JEZS
Received: 06-11-2017
Accepted: 07-12-2017

SA Bansode
Department of Zoology,
Government College of Arts and
Science, Aurangabad,
Maharashtra, India.

Dr. VR More
Department of Zoology,
Government College of Arts and
Science, Aurangabad,
Maharashtra, India

An updated list of serpent from Palghar district of Maharashtra, India

SA Bansode and **Dr. VR More**

Abstract

An updated inventory of serpent fauna from Palghar district of Maharashtra is provided here with. This has been carried due to some recent new records from various families. The present study is an attempt to appraise the information, occurrence, abundance and species richness and further assist in the knowledge, awareness and conservation of snake fauna in this region since there is acute paucity of established work and data on this subject till date. Now biodiversity of snake from Palghar district shows seven families and thirty-five species in all. Now biodiversity of snake from Palghar district shows 07 families and 35 species in all.

Keywords: Biodiversity, Herpetology, Venomous, Non-venomous, conservation

1. Introduction

Snakes are well adapted to their habitat. Depending on their habitat, they may be aquatic snakes, burrowing and arboreal snakes, Snakes are found in different size, shape and color due to their mode of life. Snakes occupy a wide range of habitat, which includes fields, forests, wetland, ponds, lakes, streams, rocky hillsides, farmland, vacant plots and residential areas also. Diverse species of reptiles are found in all types of habitats and many of them live very near to human habitations. Due to many superstitions, myths and false beliefs, people either avoid them or wantonly kill them. In any case, there is little attempt to study the reptiles or understand their ecological significance or protect and conserve them.

Snakes are friends of humankind if we could understand their ecology and biology but they may be harmful if they are not handled properly and not understood them properly. Not all snakes are poisonous, few of them are semi poisonous while majority are non-poisonous. As a curiosity to determine the diversity of snake species in the different microhabitats (Niches) of Palghar district this research was conducted. It will be an important baseline data for the further studies on snakes of this region because in this region one of the most deadly snakes in the world such as Spectacled Cobra, Russel's Viper, Saw Scaled Viper, Bamboo Pit Viper, and Common Indian Krait are abundantly found. Snakes are abundant all over the world except in the Arctics, New Zealand and Ireland. It is postulated that there are about 3000 species of terrestrial snakes in the world and they are predominant in the warm climates and lush-green regions of the tropics. About 278 species are found in India out of which 58 species are poisonous [17]. Snakes are the members of the class Reptilia commonly they are known as reptiles. All over the world, near about 3783 types of snake species are found out of which 297 species of snakes are found only in the India. The snakes found in India show great diversity and their length varies from 6mm to 10m, while weight ranges between few grams to several kilograms. These remarkable reptiles can live in every biogeographic region of the world, at an altitude higher than 5000m and survive in deep waters. Snakes occupied deserts, forests, marshy, swampy places, lakes, streams and rivers of different terrains [4]. Whereas Maharashtra shows high mortality, upto 2000 deaths per year, particularly in rural population showed High mortality. 3000 species of snakes are distributed worldwide. 500 are venomous species 52 venomous species are found in Indian subcontinent [15]. India is very rich country in terms of the flora and fauna present in the natural ecosystem. About 3500 species of snakes are recorded on earth inhabiting both land and sea of which about 375 are venomous [18].

Romulus Whitaker and Neelimkumar Khaire have been contributed much on this fauna from India, in terms of streamlining the biodiversity of Snakes from India. Neelimkumar Khaire has made a field guide features with 68 species of snakes found in India. Romulus Whitaker has shown 30 representative forms, most of which might be encountered by an Indian citizens [24].



Dr. VR More
PRINCIPAL

Govt. College of Arts & Science
Aurangabad

Correspondence
SA Bansode
Department of Zoology,
Government College of Arts and
Science, Aurangabad,
Maharashtra, India.

Present study strongly appeal that the existence of species of snakes in their habitat is going to endangered and some of them are rare, it means that it is the indication of diverse habitats are rapidly changing and it is harmful to their biodiversity and their habitat. Considering the number of species observed it is clear that the degraded forest niche has few species of serpent fauna. Among the non-poisonous snakes the rare species reported here as Indian rock python, *Python molurus* and Striped keel back, *Amphiesma stolatum* belongs from Boidae and Colubridae family respectively [13]. The present study therefore reveals to conduct a long term monitoring and systematic study of this important group of animal's initiation of research, protection measures and public awareness campaigns addressing local community would go a long way in conserving the snakes [21].

The present study is an attempt to evaluate the information about different types of snake species their occurrence, abundance and species richness and further assist in the knowledge, awareness and conservation of snake fauna in this region since there is acute paucity of established work and data on this subject till date. Isolated inputs in the form of records have appeared from various workers time to time. Unfortunately, previous list of biodiversity of snakes from Palghar district is lacking some species. More ever data need to be updated due to shuffling. An updated checklist of 35 species of 07 families is presented here.

2. Materials and Methods

The overall geographical Mokhada-Jawhar region is having hilly area with all the geographical and ecological conditions favoring the occurrence of different types of snake species in the in this area. A well-trained snake catcher had captured the snakes that have been sighted during visits or randomly or on

request of local people, when snakes were observed in their houses or in and around their areas. For the people in the Mokhada-Jawhar region and surrounding villages around the them were provided with mobile phone number of the snake catcher as well as authors to the villagers to inform the presence of snake species in their respective villages. After catching the snakes their characteristics, predominant features were noted, photographed and identified [4-7]. Subsequently the captured snakes were released into the forest area.

Snake catcher had captured all the poisonous, non-poisonous snakes on the request of telephonic calls from the houses of people throughout the year. Captured snakes data was recorded during 2015 to 2016 to study their biodiversity. The snakes were handled very carefully and all possible precautions were taken not to disturb or injure them. After study, snakes were released safely in the forests without any harm to them. The snakes found in the residential area were caught safely using snake-handling sticks and packed in cotton made snake bags with metal rings and carried to the wild habitats at safe places from human habitations. Morphological characters were photographed by using 16.0 Megapixel Nikon Coolpix Optical Zoom Digital Camera. The correct identification of reptiles was done by referring various books viz. The book of Indian reptiles J.C. Daniel [4] Neelinkumar Khaire [12] and Romulus Whitaker [27].

2.1 Ethical issues followed during the study

No snakes were harmed during this study. The snakes were released in a safe area in order to minimize their rescue from the nearby village peoples. All the caught snakes were released on that day itself in the forest in the wake of above discussion.

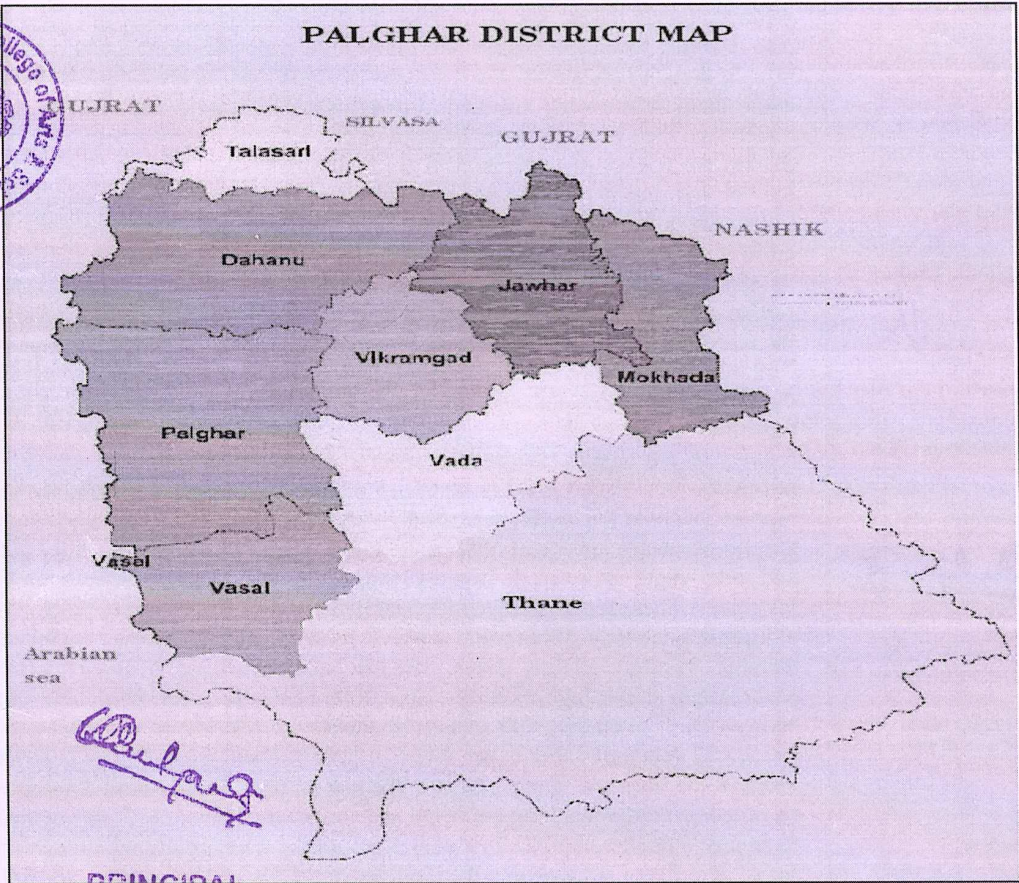


Fig.1: Map of Palghar district showing Mokhada and Jawhar

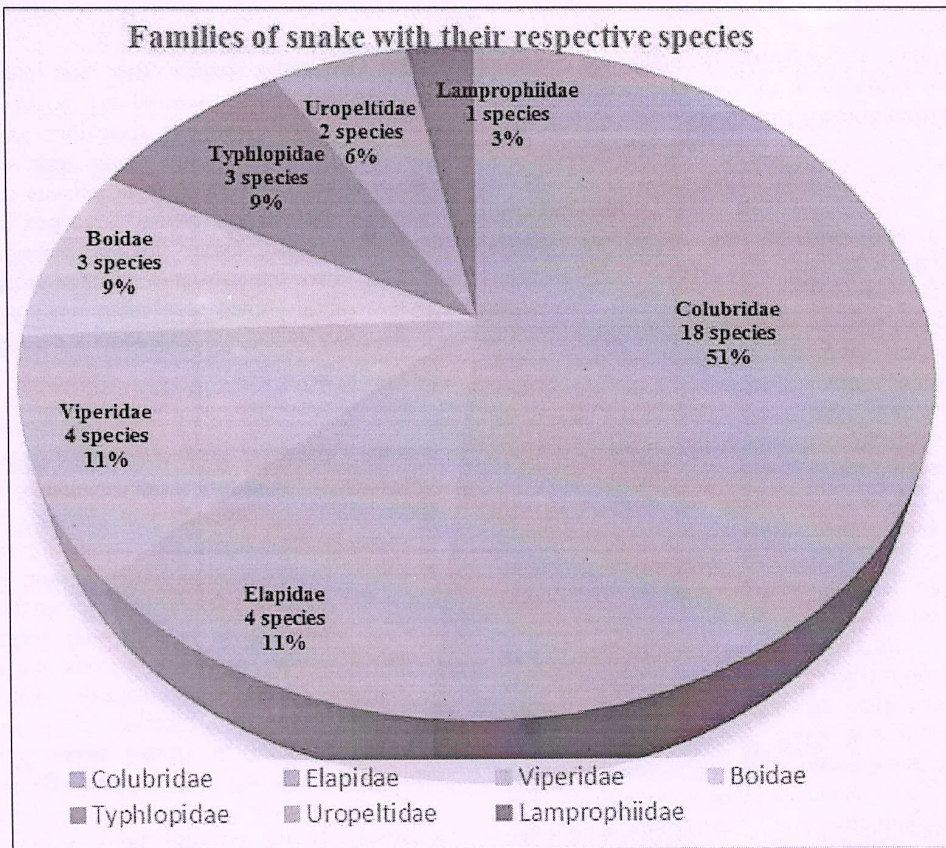


Fig 2: Pie diagram representing the status of Herpetofauna in Mokhada Jawhar

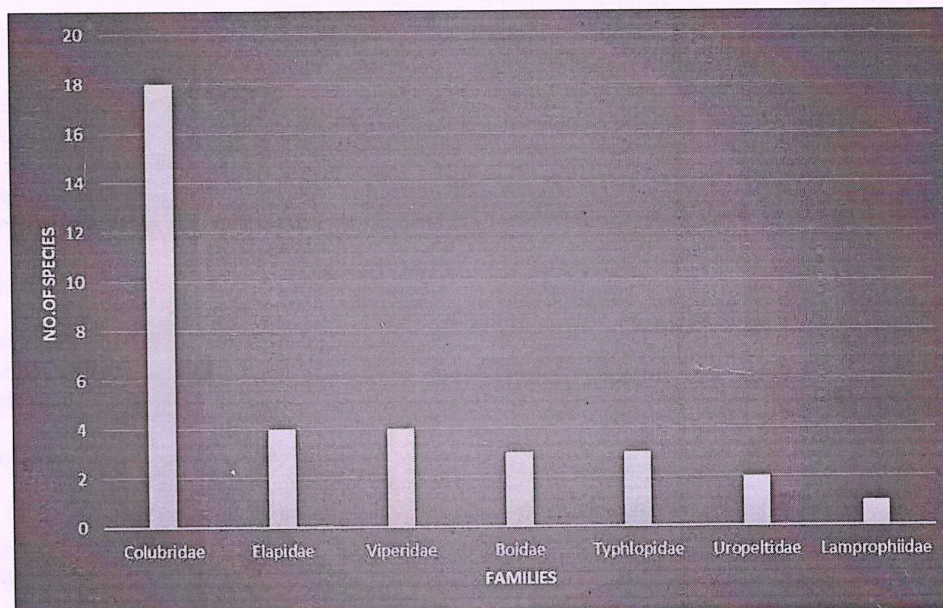


Fig 3: Bar diagram representing total number of species richness in their respective Families



2.2 The updated list of the herpatofauna is as follows.

Family: 1. Colubridae

Species:

1. *Argyrogena fasciolata*
2. *Coelognathus helena helena*
3. *Coelognathus helenamonticollaris*
4. *Colubergracilis*
5. *Ptyas mucosa*
6. *Dendrelaphistrictis*
7. *Lycodonaulicus*
8. *Sibynophissubpunctatus*

9. *Xenochrophispiscator*
10. *Amphiesma stolatum*
11. *Macropisthodon plumbicolor*
12. *Oligodon armensis*
13. *Boiga trigonata*
14. *Ahaetulla nasuta*
15. *Ahaetulla pulverulenta*
16. *Boiga ceylonensis*
17. *Boiga forsteni*
18. *Gerarda prevostiana*

(Signature)
PRINCIPAL
 Govt. College of Arts & Science
 Aurangabad

Family: 2. Elapidae

Species:

1. *Bungarus caeruleus*
2. *Calliophis melanurus*
3. *Najanaja*
4. *Hydrophis Caeruleus*

Family: 3. Viperidae

Species:

1. *Trimeresurus gramineus*
2. *Echis carinatus*
3. *Daboia russelii*
4. *Bungarussindanuswalli*

Family: 4. Boidae

Species:

1. *Python molurusmolurus*
2. *Gongylophis conicus*
3. *Eryxjohnii*

Family: 5. Typhlopidae

Species:

1. *Grypotyphlops acutus*
2. *Ramphotyphlops braminus*
3. *Rhinotyphlops acutus*

Family: 6. Uropeltidae

Species:

1. *Uropeltis macrolepis mahableshwarensis*
2. *Uropeltis macrolepis macrolepis*

Family: 7. Lamprophiidae

Species: 1. *Psammophis Longifrons*

3. Result

As per the updated list, Palghar district has snakes from seven families. Family: 1. Colubridae, shows 18 various kinds of snakes. Percentage of Colubridae in Palghar district is maximum as compared to other families. Fig.01 shows the percentage of various families and their species. Family: 2. Elapidae shows four species of snakes. Family: 3. Viperidae also has four types of snakes. Family: 4. Boidae and Family: 5. Typhlopidae has three species of snakes. Family: 6. Uropeltidae has two species of snakes. Family: 7. Lamprophiidae has one species. Figure 01 shows graphical representation of snake families and their species. Palghar district has maximum diversity of family Colubridae as it has 18 species whereas family Lamprophiidae shows only one species *Psammophis longifrons*. All major four (Commonly called as Big Four, Whitaker and Captain, 2008) venomous species of India i.e. Spectacle Cobra, Common Indian Krait, Russell's viper and Saw scale viper were recorded from this study area.

4. Discussion

Spectacled Cobra, Russell's viper and Saw scaled Viper were the poisonous snakes from these Saw Scaled Viper comes under most deadly venomous 10 snakes of the world. Green vine snake (*Ahaetulla nasuta*) was rarely found especially during late monsoon and early winter. Among the arboreal snakes common vine snake was seen on the trees whereas Common trinket was seen on the shrubs and sometime on trees. Rat snakes were commonly spotted in the study area throughout the study period. The poisonous snakes Spectacled Cobra, Russell's viper and Saw scaled Viper and non-

poisonous Buff-Striped Keelback, Banded Kukari Snake, John's Sand Boa, Bronzeback tree snake, Common Indian Trinket Snake were observed throughout the year. Indian Rock Python was rarely observed in the forest areas, grazing areas. No snakebite case was observed during the study.

Upadhye *et al.* (2012) [23] studied the herpetofauna of Vidyanagari Campus of the University of Mumbai, Ahsan *et al.* (2015) [11] has studied the status and diversity of snakes of Chittagong University Campus, Bangladesh and found a record of 36 species. Similar study was done by Yadav *et al.* (2014) [30] Herpetofaunal diversity in Radhanagari Wild Life Sanctuary, Kolhapur, and Maharashtra and studied the diversity, threats and conservation of herpetofauna in Shivaji University Campus at Kolhapur. From Amravati, district Nande and Deshmukh (2007) also reported 32 species of snakes. Whereas Joshi (2011) [8] also reported 22 species of snakes in Buldhana district. Ingale P., Bali S., Khandale J., also have studied Preliminary Survey of Snake Diversity from Malegaon Tehsil of Washim District, Maharashtra. During their study they have reported 15 venomous snakes, 04 non-venomous and 01 semi venomous snake. In previous study, Harney N.V. (2011) [6] have also Studied on Snakes of Bhadravati, District Chandrapur (M.S.). During their study period they had collected 466 snakes and classified under 6 families namely Elapidae, Viperidae, Colubridae, Diapsididae, Boidae and Pythonidae these families represents 17 types of species. 4 poisonous snakes, 12 nonpoisonous and 1 semi poisonous snakes were reported.

Walmiki N. *et al.*, (2012) also have studied here to fauna of Bassein fort and surrounding region, Thane, Maharashtra, India. They have reported the reptilian and amphibian diversity was in and around Bassein fort. The reptilian diversity comprises 23 snake species, 3 skinks species, 5 gecko species and 3 lizard species and 1 terrapin and 1 turtle species. Amphibian includes 5 frog and 1 toad species. Raut S.R., *et al* (2014) [17] have studied the biodiversity of snakes from Palghar district, did similar study. They have studied biodiversity of snakes from, Palghar, Manor and Saphale. They have identified 15 non-venomous, 03 semi venomous and 07 venomous snake's species. This study includes the biodiversity of snakes from Jawahar and Mokhada regions of Palghar district. Present study is a great reckoner for the herpetological researcher as no work has been done in this area. During present study 19 non-venomous snake's species and 11 venomous species are recorded.

It is observed during the 99% people without knowing the importance of snakes in ecosystem and without having sufficient knowledge of morphological difference between poisonous and non-poisonous snakes they directly kill them by declaring it as poisonous and harmful creature. This happens due to misunderstanding and lack of awareness among peoples about snakes. It is our effort through this study to make aware and literate the people in the region to understand and cooperate on snake conservation; because every form of the life existing on the earth is very unique and warrants respect regardless of its worth to human beings, this is the ecosystems right of an organism. Every organism has an inherent right to exist regardless of whether it is valuable to human beings or not. It has right to survive in its environment.

5. Conclusion

The present study reveals that the non-poisonous snakes were found in maximum number as compare with the poisonous snakes. An updated checklist of Palghar district with

Govt. College of Arts & Sciences
Amravati

Principal



herpatofauna shows 35 species of 07 different families. Recorded snakes belongs to 7 different families namely Colubridae, Elapidae, Viperidae, Boidae, Typhlopidae, Uropeltidae, Lamprophiidae. Family Colubridae shows maximum diversity in this region because among 35 snakes species 18 belongs to this family with record of 5 venomous snakes. The present study reveals that the non-poisonous snakes were found in maximum number as compare with the poisonous and snakes. Above results indicates healthy environmental conditions in the area. According to present study good reptilian diversity was recorded indicating that the habitat was ideal for reptiles and the food is available abundantly. Presence of rare species of reptiles recorded in the study area suggest that the area is not very much influenced by anthropogenic activities, as well it should be conserved on high priority by considering reptilian biodiversity which plays the important role in maintaining the ecological balance.

6. Acknowledgement

Author is grateful to Mr. Mayur Naresh Kedar (snake friend, founder of "Wan Sanyajeev Sanwardhan Sanstha, Jawahar), who has helped a lot during present study.

7. References

1. Ahsan MF, Haider IKA, Rahman MM. Status and diversity of snakes at Chittagong University Campus in Chittagong, Bangladesh. *Journal of Threatened Taxa*, 2015; 7(14):8159-8166.
2. Bansode SA, More VR, Mirza KAA. Study on snakes from Mokhada and Jawhar (Dist. Palghar) Maharashtra, India. *International Journal of Fauna and Biological Studies*. 2016; 3(5):103-115.
3. Deoras PJ. *Snakes of India*, National Book Trust (NBT), New Delhi. 1965.
4. Daniels JC. *The book of Indian Reptiles and Amphibians*, Bombay Natural History Society and Oxford University Press. Mumbai. 2002.
5. Dhamankar Atul, Aranya Vachan, Shri Vidya Prakashan, Pune. 2006.
6. Harney NV. *Studies on Snakes of Bhadrawati*, District Chandrapur (M.S.) India. *Online International Interdisciplinary Research Journal {BiMonthly}*. 2011; 1(I).
7. Ingale P, Bali S, Khandale. Preliminary Survey of Snake Diversity from Malegaon Tehsil of Washim District. *World Journal of Zoology*. 2014; 9(2):134-137.
8. Joshi Prasanna. A preliminary survey on the snakes of Buldhana district, Maharashtra. *Gloden Research Thought Journal*. 2011; 1(2):1-4.
9. Karangutkar S, Walmiki N, Awsare V, Wagh V, Yengal B, Salvi S. Mangroves and associated faunal diversity of Kolak Estuary, Vapi, Gujrat. *J. Scientific J. Health, Safety and Environment*. 2013; 1(7):173-187.
10. Khaire Neelamkumar. *Indian Snakes*, Indian Herpetological Society, Pune. 1996.
11. Khaire N. *Snakes*, Indian Herpetological Society, Pune Deshpande VY, Kulkarni Sidharth, Mahamuni, 2010.
12. Khaire N. *A Guide to snakes of Maharashtra, Goa and Karnataka*. Indian Herpetological society. 'USANT', Maharashtra, India, 2006.
13. Khaire A, Khaire N. A List of snake's neighborhood of Poona, Maharashtra with some observations. *Geobios News reports*. 1985; 4(1):12-114.
14. Khobragade K, Pawar VB. Diversity and Ecological Status of Serpent Fauna of degraded forest habitats of in and around Lonar lake Reservoir (Lonar Crater Rim), Buldhana District, Maharashtra, IJESI, 4(1):19-21.
15. Nande Raghvendra, Deshmukh Sawan. *Zoo's Print Journal*. 2000; 22(12):2920-2924.
16. Punde DP. *Meet the Expert: Management of Snake Bite 9 Report APICON, Kochi*, Medicine update, 2008, 18.
17. Raut SR. Recent studies on the biodiversity of snakes in Palghar region, Thane, Maharashtra, India. *Advances in Applied Science Research*. 2014; 5(2):373-381.
18. Sharma RC. Taxonomic and ecological studies on the reptiles of Gujarat, India. *Rec. Zoological Survey of India*. 1982; 80:85-108.
19. Sharma BD. *Snake the Specialized Reptiles*, in: *Snakes in India, A source book*. (Sharma, B.D. and Kumari T.K. eds.) Asiatic Publishing House, Delhi, India. 1999, 352.
20. Sharma RC. *Handbook Indian snakes*. *Zoological Survey of India, Kolkata*. 2003; 20(292):69.
21. Sirsat C, Patil M, Ujiwal V. Analysis of Data on Snakes Diversity and Ecological Status from Aurangabad District, (MS) India. *Bioscience Discovery*. 2016; 7(2):162-165.
22. Harney NV. *Studies on Snakes of Bhadrawati*, District Chandrapur (M.S.) India *Online International Interdisciplinary Research Journal*, 1.
23. Upadhye MV, Puranik VV, Dabholkar P, Jadhav U. Herpetofauna of Vidyanagari Campus of the University of Mumbai, Maharashtra. *Zoo's print*, 2012, 15-20. IISN: 2230-7079.
24. Whitaker Romulus. *Common India Snakes, A field Guide* National Book Trust (NBT), New Delhi, 1978.
25. Walmiki. *Herpetofauna of Maharashtra Nature Park*, Mumbai, Maharashtra, India. *World Journal of Environmental Biosciences*. 2013; 1(2):90-99.
26. Whitaker R. *Common Indian Snakes- A Field Guide*. Revised edition. MacMillan India Ltd. New Delhi, 2006.
27. Whitaker R, Captain A. *Snakes of India -the Field Guide*, Chengalpattu, Draco Books, 2004.
28. Whitaker R, Captain A. *Snakes of India -The field guide*. Draco Books, Chengelpet, South India, 2008, 481.
29. Yadav Omkar, Yankanchi SR, Patil AM. Diversity and threats of herpetofauna in Shivaji University Campus, Kolhapur. *International Journal Current Microbiology, Appl. Sci*. 2014; 3(6):742-749. IISN: 2319-7706.
30. Yadav Omkar, Yankanchi SR. Herpetofaunal diversity in Radhanagari Wild life Sanctuary, Kolhapur, Maharashtra. *Journal of Biolife*. 2014; 2(4):1154-1159. IISN: 2320-4257.



Handwritten signature

PRINCIPAL
Govt. College of Arts & Science
Aurangabad