

1 **Description and phylogenetic characterization of hydra from Naukuchiatal**
2 **(Uttarakhand, India) and comparison with other *Hydra* strains**

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4 **Rohini Londhe, Lakshmi Surekha Krishnapati and Surendra Ghaskadbi***

5
6 Developmental Biology Group, MACS-Agharkar Research Institute, Pune-411 004, India

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8 Email: rjlondhe@aripune.org, skrishnapatimsc@gmail.com, smghaskadbi@aripune.org

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16 *Author for correspondence

17 Dr. Surendra Ghaskadbi

18 Developmental Biology Group

19 MACS-Agharkar Research Institute, G.G. Agarkar Road

20 Pune-411 004, India

21 Ph: [+91 20 25325063](tel:+912025325063); Fax: [+91 20 25651542](tel:+912025651542)

22 Email: smghaskadbi@aripune.org; ghaskadbi@gmail.com

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24 **Abstract**

25 Hydra, a fresh water Cnidarian, has been used as a model system to study, regeneration
26 and pattern formation. Here we report a newly identified hydra from Naukuchiatal, India.
27 Comparison of *Hydra vulgaris* Naukuchiatal with *Hydra magnipapillata*, *Hydra vulgaris*
28 AEP and *Hydra vulgaris* Ind-Pune showed variations in morphology. Nema arrangement
29 in holotrichous isorhiza nematocytes showed transverse coiling pattern, a characteristic
30 feature of the ‘vulgaris’ group. Phylogenetic analysis using conserved mitochondrial
31 genes confirmed that Naukuchiatal hydra belongs to the ‘vulgaris’ group though it is a
32 different strain particular to the type locality. It's morphological peculiarities could be the
33 result of pristine environment.

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35 **Keywords:** Hydra, mitochondrial genes, morphology, nematocysts, taxonomy

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