

NATURE'S SECRET CODE



Exploring Aquatic Life with eDNA



Have you heard of eDNA? It's a supercool tool that can help us track biodiversity by studying tiny DNA bits left behind in water or soil! It's like a magical spyglass for nature!

eDNA comes from many sources—like skin cells, poop, slime, or even dead animals—and we can find it in water, air, or soil! It's like nature's hidden diary!

With eDNA, we can check if a species is present or even estimate how many there are—without disturbing the animals!



Did you know we've only discovered a small fraction of all the species on Earth? So many creatures are disappearing before we even know they exist!

And if one species vanishes, it could mess up the whole chain of life, like knocking over a line of dominoes!

Traditional ways of counting species aren't perfect—they can miss some and even harm delicate creatures during the process. Ecosystems like rivers, oceans, and lakes are teeming with life, from tiny microbes to giant whales!



eDNA doesn't last forever in the wild. It can stick to stuff, sink, or even break apart! Temperature, salinity, and even sunlight decide how long it stays.

The size of the filter we use for eDNA is super important—it decides what kind of DNA we'll catch, like cells, slime, or even free-floating DNA! So, filters are like special nets for invisible clues!



Guess what? eDNA can do way more than just detect species—it can help us study entire ecosystems and how they’re changing over time! It’s like a giant puzzle piece for conservation.

But watch out—sometimes eDNA can trick us! Dead animals or undigested food might give false signs of life. And contamination during testing can mess things up, too!

We’re not just finding out who’s there—we can even estimate how much biomass* or DNA is around, thanks to advanced methods.

False negatives are also a problem. Sometimes we don’t detect an organism even when it’s there. That’s why replicates and optimized methods are key! We can avoid errors by sampling multiple times, following protocols carefully. So, science needs patience and precision—got it?!

*Living weight



eDNA is a powerful tool for monitoring biodiversity, especially in a changing world. By combining it with traditional methods, we can protect species and ecosystems more effectively!

THIS CONTENT IS ADAPTED FROM THE PAPER TITLED "ENVIRONMENTAL DNA AS A TOOL FOR BIODIVERSITY MONITORING IN AQUATIC ECOSYSTEMS - A REVIEW" BY RAY, M., & G. UMAPATHY (2022).

IT HAS BEEN SIMPLIFIED AND REWRITTEN TO MAKE IT ACCESSIBLE AND EASY TO UNDERSTAND FOR A GENERAL AUDIENCE, WITHOUT TARGETING ANY SPECIFIC AGE GROUP.



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