

An architectural marvel of a potter wasp, binding water to bide

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The brilliance of scintillating sunshine was so radiant and scorching that there was considerable drop in the availability of water, at this juncture what else could we think of? except for survival instincts? It always remains as a question, but on the other hand only who senses it could recognize the activity of other organisms around us which exactly coincides with the theme of this year's Biodiversity Day i.e., "OUR SOLUTIONS ARE IN NATURE" this is explicitly true as during lockdown, I happened to unearth the fact that my homestead is rich in biodiversity.

There was a sight, which surprised me a lot. A wasp like creature was flying around the wet clothes kept for drying. It flew away in a matter of seconds after sucking water from them. Though I don't know its whereabouts but it was revisiting the same spot over again and again, the next day, there were no clothes left for drying. Surprisingly I saw it flying around the well! the only source of water. It was sucking the water content from the rope which was used to draw water. While reaching the rope, it's wings were still and after the intake, a sudden flight was noticed. Finally, I found it in my house.



Figs 1-4: 1. Adult wasp, 2. Nest, 3. Eggs, 4. Larvae

There was also a mud nest nearby. After seeing the mud nest, I understood that it is potter wasp.

The potter wasp uses the water for building this nest. While reaching the water source, they suck the water inwards and release them on reaching a place where they could get good granular soil by the process of regurgitation. After mixing the water with the soil, they would make a mud ball and will carry it to the construction site. The potter wasp entered my house through a window which was kept open. The nest was also nearer to the window, where in Interestingly, I could spot a green caterpillar inside. Afterwards, the potter wasp closed the opening of the cell. I waited for the construction of the next cell so that I could understand their nesting behaviour from the beginning. After a long gap the mason brought small balls of mud from backyard and started construction, It is very interesting to see how it built the house by moving the yellow head with two large black shiny compound eyes forward with the help of a pair of front legs. There is an ivory like part at the bottom of the head, near mouth, i.e the mandibles, with which it digged the soil. The next two pair of legs help them to stand firm. The movement of the head will surely doubt us whether they are telling something to us. Their thorax is half yellow half reddish brown and the abdomen is reddish brown and yellow, with a black stripe in middle, by the time I noticed the architectural beauty of the wasp construction of the second cell was also completed. After that, I saw it folding its abdomen into the cell. Now I understood it was about to lay the eggs. Soon after laying eggs, she disappeared and returned, but wasn't alone this time, astonishingly was

holding a caterpillar which she placed in her nest.

I wondered why the caterpillar was unable to escape through the hole in her absence?

A wonderful feast by the mother wasp for her beloved ones. I took a glimpse towards their life. The main food of an adult potter wasp is flower nectar. Once they undergo mating, the female potter wasp collects the sperms from the male. Later it is all the female who are actually seen in the scenario. After mating, the females search and finds a suitable place for building nest. Now she starts to build the nest. Once she completes the work, it's time to lay the eggs. She can decide the sex of eggs they lay. That is, if the egg is fertilised with the sperm which was collected during mating, it will be a female. If it is unfertilized, then the eggs will be males. After laying eggs, her duty shifts into finding food for the larvae that comes after hatching. Their major preys are lepidopteran caterpillars and spiders. After stinging the caterpillars, she takes them with her. After putting them inside the cell, she closed the opening of the cell. Then the cell is covered once again with mud. This is because other wasps could enter inside the cell and destroy the eggs and lay their own eggs. Now she has no role left with that cell. She starts to build the next one. Finally on completion of the nest, she leaves.

They belong to order Hymenoptera, Eumeninae subfamily of the Vespidae family. The potter wasp which visited my house was *Delta pyriforme*. They do not lead a social life. Generally, wasps are very violent. But potter wasps are not violent as others. We could observe them without panic making sure that it is does not harm us. We need to understand that it is not very

easy for a potter wasp to build its nest. Finding a suitable place, building nest, laying eggs, search for prey, paralyzing them, putting them into the cell creates thousands of questions in our mind. The honeybees understand a place through waggle dance. But how does a potter wasp find the correct position of her nest, water source, soil source etc. The answer is when they start to fly, there is a zig zag movement at the beginning. They consider some signs to keep the position in mind. We can always see this test flight before they start flying. Many days passed by the eggs inside the nest hatched. The larvae ate the reserved food. The adult potter wasps came out of the cell with the help of secretions from mouth. When *Delta pyriforme* left, the next guest came to the same nest. It was a mud dauber was in the genus *Chalybyon*. After all, it is very exciting to observe them. The joy of finding them is indescribable.

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