

Starfish hold key to treating blood clots

Scientists: Fluid In Organism Can Beat Thrombosis

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Panaji: Just as the monsoons begin to subside, thousands of starfish begin to flourish along the Konkan coast, often washing up on the shore with the ebb and flow of the tide. These marine invertebrates, the *Astropecten indicus* species, are predominantly found between September and December along Goa's coast.

Marine biologists have now discovered that these delicate starfish could hold the key to treat deep vein thrombosis and pulmonary embolism, a common and potentially life threatening condition that affects thousands of patients in India and globally.

"We observed the potential of the body fluid of these species (known as the coelomic fluid) to treat thrombo-

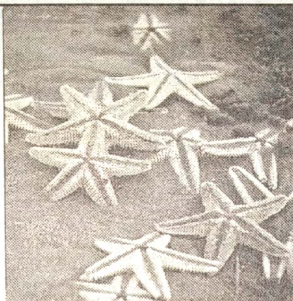
NATURE'S CURE

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> Research shows that starfish coelomic fluid contains molecules that can dissolve blood clots and heal wounds

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sis, a cardiovascular disease which is a leading cause of death world-wide," says Mansi Baveja, a PhD scholar with the BITS Pilani biological sciences department.

Thrombosis is a cardiovascular condition wherein blood clots appear within the blood vessels and travel via the blood circulation to other parts of the body. It can completely stop the blood flow through arteries or veins and eventually cause death.

This potentially life-threatening condition, often re-

mains under diagnosed, and awareness among Indians regarding this potentially life-threatening disease remains woefully low. Professor Dibakar Chakrabarty, who is pursuing research in anticoagulant toxins in jellyfish and starfish venoms, found that the regenerative ability of a starfish offered a potential treatment for blood clots.

"Starfish has a body cavity or coelom, which is bathed by a fluid. This fluid contains a great variety of substances ranging from nutrients, fac-

tors responsible to maintain immune system, enzymes and many other molecules required for survival of starfish," says Chakrabarty.

The professor, who teaches at BITS Pilani's Goa Campus, says that the starfish has a legendary capacity to grow its arms when they are severed accidentally. "In our search for the molecules responsible for this great healing ability, a molecule was found that not only can heal wounds created on a layer of cells in a petri-dish, but could also effectively dissolve artificially made blood clots," he says.

The incidence of venous thromboembolism in Asia and India is comparable to that in western countries. It is a common medical complication associated with hospitalization and preventable death. While no definite statistics are available for India, research data shows that it takes as many as 30,000 lives every year in the United States alone.

"There is a need for thrombolytic drugs of natu-

ral origin having lesser side effects. The coelomic fluid of sea-star *Astropecten indicus* was found to be non-toxic and hence offered potential as a useful drug," Baveja says.

The young researcher says that despite the starfish's natural ability to heal itself, no wound healing agents from been reported from sea-stars till date. The invertebrate species exhibit remarkable potential in the pharmaceutical as well as cosmetic industries, say researchers at the BITS Pilani, K K Birla Goa Campus.

Chakrabarty is quick to exercise caution, and says that further scientific tests are required to establish and develop a marketable treatment for mankind.

"Our results show that starfish coelomic fluid contains molecules with very good ability to dissolve blood clots and heal wounds. The results, however, need to be replicated in animals before making a comment that 'we have found the ultimate medicine to heal all wounds,' he said.

Rakesh Mundy