

AFP



"Dinosaur eel" points to body armour of the future

4 days ago



The Pentagon

PARIS (AFP) — An extraordinary fish that inhabits muddy pools in West Africa and whose lineage can be traced back 96 million years could be the model for light, bomb-proof body armour for the soldiers of the future.

So say Pentagon-backed scientists who have pored over the scales of *Polypterus senegalus*, also called the Senegal bichir or the dinosaur eel.

Long and skinny and of ancient heritage, the 40-centimetre (16-inch) predator has multiple layers of scales that first dissipate the energy of a strike, then protect against any penetration to the soft tissues below and finally limit any damage to the shield to the immediate area surrounding the assault.

Experts at the Massachusetts Institute of Technology (MIT) used nano-scale measurements to look at several scales that were harmlessly removed from a living fish.

They found the scales -- about 500 millionths of a metre thick -- have four layers. The tiny shield was then put to the test, in a simulation of a biting attack.

The team believe the scales' protection is remarkably effective because of the different composite materials, the geometry and thickness of each of these layers.

The overlapping junctions between the layers themselves also play an important role.

The design is "fascinating, complex and multiscale," say the scientists.

"Such fundamental knowledge holds great potential for the development of improved biologically-inspired structural materials," said Christine Ortiz, an MIT associate professor in materials science and engineering.

Related News

- [Want the best armour? Consult Mother Nature](#)
Independent Online - Jul 29, 2008
- [Fish scales referable to future armor](#)
Xinhua - Jul 28, 2008
- [Incredible Fish Armor Could Suit Soldiers](#)
FOXNews - Jul 28, 2008

[Full coverage »](#)

©2008 Google - Map data ©2008 Tele Atlas - Terms of Use

"Many of the design principles we describe -- durable interfaces and energy-

dissipating mechanisms, for instance -- may be translatable to human armour systems."

The study appears on Sunday in a specialist journal, Nature Materials.

Hosted by 

Copyright © 2008 AFP. All rights reserved. [More »](#)