

Dragon Silk: US Army to test material with impressive elasticity

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Credit: Kraig Biocraft Laboratories

(Tech Xplore)—Spider silk technology has potential for use in protective and lifesaving materials. That is the motivator that drives the Michigan-based biotechnology company, Kraig Biocraft Laboratories.

Its team are eager to stay in the frontlines on developments for genetically engineered, [spider silk](#) based, fiber technologies.

Their work has implications for the global textile industry and now for the US Army. They announced an Army contract to test their so called Dragon Silk. The application could possibly take the form of body armor. According to the announcement, Kraig Biocraft Laboratories received a contract with the U.S. Army, valued at up to \$1 million, if the option phase is awarded, to develop high performance fibers for

protective apparel—namely, ballistic shoot packs that are made out of its Dragon Silk material, for performance testing.

The base effort on this contract is scheduled to last ten months and is the company's first US Department of Defense [award](#).

("We are going to provide them a series of different thread counts, thicknesses, construction techniques that they will test against standard material performance specifications," said Kraig chief operating officer Jon Rice, according to *Defense One*. "If the material performs well, the Army may increase the award to \$1 million.") The packs will be evaluated for critical soldier protective applications.

What is so special about their Dragon Silk? *Nextbigfuture* took this point up. Kevlar is more durable than Dragon Silk but the latter shows flexibility as an advantage. *Nextbigfuture* said Kevlar's elasticity was 3 percent, while Dragon Silk's elasticity was 30 to 40 [percent](#).

However, reported Patrick Tucker, technology editor for *Defense One*, Rice, the COO, did not anticipate Dragon Silk as a direct replacement for Kevlar.

Last year, said *Nextbigfuture*, the company announced its Dragon Silk line, transgenic silkworms stronger and more elastic than commercial grade silkworm silk, and stronger and more elastic than certain spider dragline silks.

The technology behind Dragon Silk, said *Defense One*, is based in part on the work of Malcolm Fraser, Donald Jarvis and their colleagues. They introduced specific pieces of spider DNA into silkworm eggs, creating an entirely new type of silkworm that can spin spider [silk](#).

Dragon Silk is considered as a scalable, cost-effective process.

Commented Angela Chen in *Gizmodo*: "We have millennia of experience raising silkworms on farms, but nobody really wants to have a spider farm," noting they are hard to work with. "Some [scientists](#) are tackling the problem by spinning limited amounts of artificial silk in a lab, but the folks at Kraig inserted spider DNA into silkworms to make them spin a spider silk-like material."

The [demand](#) for technical fibers is expected to reach \$160 billion in 2018, said the company.

More information: [www.kraiglabs.com/kraig-biocra ... llistic-shoot-packs/](http://www.kraiglabs.com/kraig-biocra...llistic-shoot-packs/)

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