

## Aloe vera may treat battle wounds

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The aloe vera plant could give trauma victims such as soldiers the fluid needed to stay alive until they can get a blood transfusion, a study suggests.

Rapid blood loss on the battlefield is hard to replace quickly and can lead to organ failure in wounded soldiers. University of Pittsburgh scientists found juice from aloe vera leaves preserved organ function in rats that had lost massive volumes of blood. They report their findings in the journal *Shock*.

Aloe vera has been hailed for its anti-inflammatory properties. It is used to sooth inflammation of the skin from things like burns.

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Study author Dr Mitchell Fink

Scientists have also been looking at its ability to treat internal inflammatory diseases like irritable bowel syndrome. Now Dr Mitchell Fink and colleagues believe it might also be useful for managing severe blood loss. When the body loses a large volume of blood it goes into shock - haemorrhagic shock. Blood is diverted from the rest of the body to the vital organs such as the brain, heart and liver, and the blood pressure drops. If the loss is too great and the blood is not replaced, the vital organs can fail and the person dies.

### *Leaf extract*

The University of Pittsburgh team had previously found aloe vera leaf extracts decreased the force required by blood to flow through vessels. To test whether the extract might help manage haemorrhagic shock, they studied 20 rats after draining them of some of their blood. Half of the rats were given a salt solution after draining. The other half were given a small amount of solution containing juice from aloe vera leaves, which would not have been anywhere near enough to restore the volume of blood lost.

Five of the 10 rats given the salt solution survived for four hours, compared with eight of the 10 rats given the aloe vera fluid. In a second experiment where rats were drained of even more blood than before, five of 15 rats given the aloe vera fluid survived two hours. In comparison, only one of 14 rats given the salt solution survived for two hours.

Dr Fink thinks the extract works by making the blood more slippery.

### *Slippery*

"It seems to make the blood more slippery so that the amount of driving force that is needed to move the blood through the circulation is reduced. "It might work by coating the blood cells or the inside of the blood vessels, or by reducing the turbulence of blood flow through the vessels," he said.

His team is carrying out further studies to check whether this increased slipperiness would also mean an increased risk of bleeding. "It is conceivable that clotting could be impaired. There's a lot of work to be done before anyone would consider giving this to humans," he said.

Dr Fink said that if the treatment did prove to be safe and effective, it could have wider applications than for managing trauma on the battlefields.

"It could have applications for heart disease, stroke and diabetes - any disease that is associated with derangements in the circulation," he said.

Trudy Morris, a member of the National Institute of Medical Herbalists, said: "We all know that plants can be powerful in their effects and yet they are generally very safe materials." But she said further research was needed, especially in humans. "Animal-based experiments are very limited in their usefulness," she said.

A spokesman from the Royal College of Anaesthetists said: "There is a long road from animal experiments to widespread usage in human practice - sometimes because what happens in one animal is not reproducible in others or in Man, and sometimes because the side-effects are different in Man."

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