**Powerful painkiller from cobra venom**

NUS researchers develop painkiller 20 times stronger than morphine

By DAVID EE

JUST one bite from a king cobra can kill a fully grown man in hours.

But the snake's lethal venom could one day kill pain in humans instead.

Researchers at the National University of Singapore have made a powerful painkiller from it – 20 times more potent than morphine.

Its strength means it could be particularly effective for dealing with neuropathic pain, which is often caused by nerve damage and can be difficult to treat.

Crucially, said the team, laboratory tests have to date shown that it causes no side effects, even at 20,000 times the effective dose.

This is unlike other painkillers in use today, said lead researcher Kini Manjunatha. For instance, using morphine can cause problems ranging from constipation to addiction.

Even common painkillers such as aspirin can cause gastric pain.

The new drug is expected to be tested in clinical trials here from next year, with the aim of marketing it by 2010 or 2011.

Professor Kini – whose fascination with snakes began as a child in India, where he heard of villagers dying from snake bites – explained the paradoxical allure of the reptiles' venom.

"Proteins in snake venom are very similar in structure to human proteins, yet ours are not toxic," he said.

Snake bites may kill up to 100,000 people each year. He said, but all forms of their venom potentially have life-saving properties.

Prof Kini, who has a fascination with snakes, said all forms of their venom potentially have life-saving properties. PHOTO: LIM YAOHUI FOR THE STRAITSTIMES

Captopril, a drug used to treat high blood pressure, was developed using the poison from vipers.

And British scientists have discovered that snake venom can transform back into harmless molecules.

This could pave the way for the development of new drugs to treat diseases such as cancer and diabetes.

The Singapore university's research started in 1985 and has cost $3 million to date, funded internally and by the Agency for Science, Technology and Research.

Prof Kini and his team painstakingly screened king cobra venom imported from commercial snake farms in the region until they identified the lone venom protein with painkilling properties.

They then isolated the specific portion of the protein involved in the process. Not doing so may mean it remains toxic.

Their research found king cobra venom could also help treat high blood pressure and dangerous blood clots.

"We know perhaps only 1 per cent of the benefits of snake venom," said Prof Kini. "It's a very exciting challenge."

Remarkably, the Chinese Year of the Snake, he said: "It is nice that the animal I've been fascinated with all my life gets the spotlight once every 12 years."