The alkaloidal fraction of *Alstonia scholaris* leaves shows anti-inflammatory and analgesic bioactivity *in vivo*. A phytochemical study on this fraction led to the isolation of two novel alkaloids, scholarisine I and (±)-scholarisine II. Their structures were elucidated on the basis of spectroscopic methods, and a possible biogenesis is proposed. (±)-Scholarisine II selectively inhibited the inducible COX-2 rather than COX-1, and also markedly inhibited 5-LOX, comparable to positive controls.

**Key words:** Alstonia scholaris, Scholarisines I and II, COX, 5-LOX