B151 Sanguinarine, a benzo[*c*]phenanthridine alkaloid from *Bocconia frutescens*, inhibits binding of specific ligands to the human angiotensin II AT_1 receptor

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The root of *Bocconia frutescens* L. (Papaveraceae) is used in Panamanian folk medicine to treat hypertensive conditions (1). Earlier work showed that the alcoholic extract and subfractions containing benzo[c]phenanthridine alkaloids inhibited the binding of [^{3}H] angiotensin II to the human angiotensin AT_1 expressed by stably transfected CHO cells (CHO-hAT_1). Sanguinarine ($C_{20}H_{14}NO_4^+$) was characterised as the most potent compound from the mixture (IC_{50} 1.9 µM). The type of interaction of sanguinarine was further evaluated in both intact cells and membranes by measuring the binding of [^{3}H] candesartan (2). The results indicate that the inhibition of [^{3}H] candesartan binding was not restricted to intact cells (IC_{50} values of 4.37 and 23.94 µM, after pre- and co-incubation respectively), but was also found on membranes (IC_{50} values of 4.37 and 23.94 µM, after pre- and co-incubation respectively). These findings suggest a receptor interaction independent of cell viability. Furthermore, saturation-binding experiments showed a reduction in the B_{max} (from 2120 to 1765 cpm) and no change in the K_D. The kinetics studies showed no reversibility of the inhibiting effect after washing off sanguinarine. These data suggest that sanguinarine interacts with the receptor in an irreversible and non-competitive manner.

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B152 Smooth muscle relaxant properties of *Achyrocline satureioides* extract and related flavonoid derivatives

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The failure of penile erection may be due to impaired relaxation of the smooth muscle of the *corpus cavernosum*. *Achyrocline satureioides* (Lam) D.C. (Asteraceae), commonly known as "marcela", is a medicinal plant widely used in Argentina and in other countries of South America as choleretic, hepatoprotective, antispasmodic, as well as against male impotency (1). In our search for compounds with smooth muscle relaxant properties, we investigated the effects of the ethanol extract of *A. satureioides*, the two main components of this extract and their methyl derivatives on the smooth muscle of the *corpus cavernosum*. The penis were obtained from Guinea pigs. Spiral strips were mounted in an organ-bath chamber with the upper wire attached to a force-displacement transducer (GRASS, model 79) at 2 g tension. After a 30 min, L-phenylephrine was used to adjust the maximal contractile tension. Ethanol extract (EE), as well as the flavonoids quercetin (Q), quercetin 3-methyl ether (Q3), quercetin 3,7,3´,4´-tetramethyl ether (Q4) and quercetin 3,5,7,3´,4´-pentamethylether (Q5) were added to the precontracted strips and the change in isometric force was measured in 5-7 min. The results showed that the EE induced at a dose of 2.5 mg/ml and 5.0 mg/ml significant responses (65.0±15.0% and 90.0±1.0% relaxation, respectively). The studied flavonoids (Q, Q3, Q4, Q5) induced an important vasorelaxation effect at the dose of 0.075 mg/ml (79.8±8.3%, 66.0±4.9%, 86.5±8.5%, 67.3±11.1%, respectively). Quercetin methyl ether derivatives have been reported to elicit relaxant activities (2,3) and our results show that the EE of *A. satureioides* and the related flavonoids are potential candidates for the treatment of the failure of penile erection by inducing relaxation of the smooth muscle of the *corpus cavernosum*.

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