



Markiewicz, W., Markowska-Buńska, P., Burmańczuk, A., Formella, A.
and Jaroszewski, J. (2026)

'Effect of chrysin on the contractile activity of porcine uterine smooth muscle',
Journal of Elementology, 31(3), ,
available: <https://doi.org/10.5601/jelem.2026.31.2.3886>



RECEIVED: 18 May 2026

ACCEPTED: 21 July 2026

ORIGINAL PAPER

Effect of chrysin on the contractile activity of porcine uterine smooth muscle*

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Abstract

Chrysin is a naturally occurring flavonoid with a wide range of biological activities. However, little is known about its effect on female reproductive function, particularly on uterine contractility. The aim of the present study was to evaluate the effect of chrysin on the contractile activity of porcine uterine smooth muscle collected from cyclic and early pregnant gilts. The experiment was performed on two groups of animals ($n=6$ per group): cyclic gilts in the luteal phase of the estrous cycle (days 12–14) and early pregnant gilts (days 12–16 of gestation). Uteri were collected immediately after slaughter, placed on ice, and myometrial strips were isolated from the middle part of the uterine horns. The strips were mounted in organ baths containing Krebs-Ringer solution. After an equilibration period of 60–90 min, the tissues were exposed to increasing concentrations of chrysin (10^{-13} – 10^{-3} M) at 15-min intervals. Chrysin increased contraction amplitude while reducing contraction frequency and resting tension in a concentration-dependent manner, with cyclic gilts responding at lower concentrations than early pregnant gilts. These findings indicate that chrysin modulates porcine myometrial activity in a complex manner. The observed responses may involve nitric oxide release and modulation of calcium-dependent signaling pathways. In conclusion, chrysin significantly affects uterine smooth muscle contractility in pigs and may be considered a potential natural modulator of myometrial function.

Keywords: chrysin, flavonoid, porcine myometrium, uterine contractility

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* This work was funded by the Department of Pharmacology and Toxicology, Faculty of Veterinary Medicine University of Warmia and Mazury, Olsztyn, Poland