

# *Allium sativum* L. for prophylaxis of diarrhea in weaned piglets

## How to find the right dosage

### Background

Postweaning infection with enterotoxigenic *Escherichia coli* strains leads to high morbidity and mortality in piglets. (1)



**Photo 1:** Newly weaned piglet with diarrhea. Photo: © FiBL, Mirjam Holinger

Garlic (*Allium sativum* L.) exhibits anti-bacterial, antidiarrheal, anti-inflammatory and immunomodulatory effects. (2)



**Photo 2:** Piglet with *E. coli* sepsis. Photo: © FiBL, Hannah Ayrle

Garlic could be an alternative or complementary prophylaxis and therapy, but established dose regimens are missing. (2)



**Photo 3:** Garlic bulb. Photo: © FiBL, Hannah Ayrle

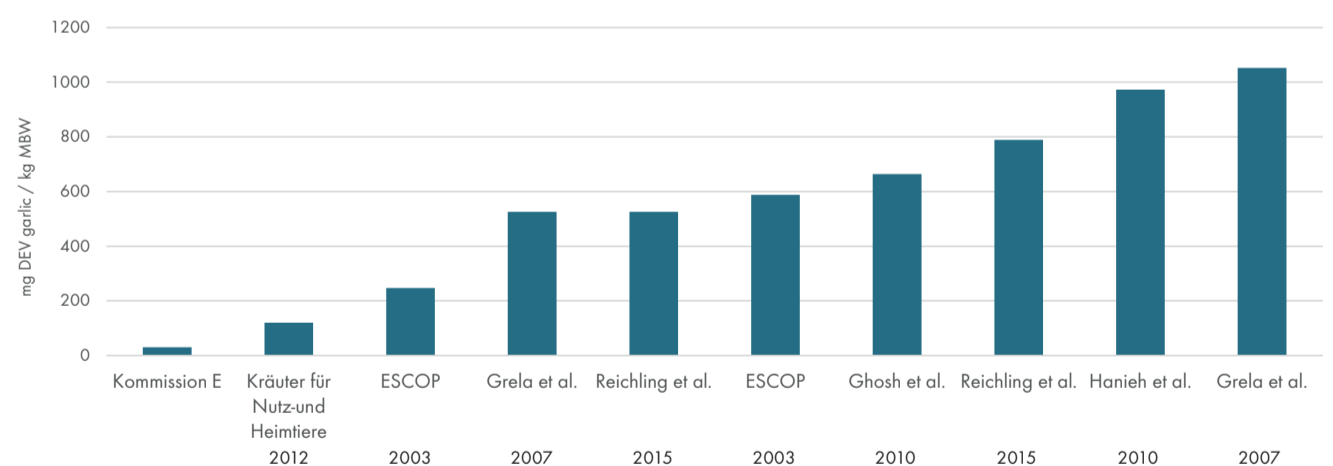
### Material and Methods

- Based on a systematic review (2), 16 peer-reviewed references, 2 textbooks on veterinary phytotherapy, ESCOP and Commission E monographs were screened for scientific proven or recommended daily dosages of garlic.
- The aim was, to determine the amount of used dry plant drug equivalent (DEV) in mg.
- To include data from studies with different mammalian species, a conversion via metabolic body weight (MBW) was conducted.
- Due to a lack of given data, for only 3 peer-reviewed references (pigs: 1; cattle: 1; poultry: 1) a dosage calculation was possible.

### Results

Daily dosages range from a minimum of 30 mg to a maximum of 1052 mg DEV garlic/kg MBW (mean: 520.8 mg; median: 557 mg) (see graph 1).

#### Graph 1: Daily dosages for garlic in screened references



### Conclusion

- For studies of pharmacodynamic and clinical trials we propose to use dosages of 300 mg garlic/day/kg (500 mg/kg MBW) in pharmaceutical quality and with known phytochemical composition for a duration of 7- 14 days.
- A following clinical trial with piglets has been conducted to investigate the effects of garlic on postweaning diarrhea and performance – analysis of data is under way.

### Acknowledgements and References

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1. Fairbrother J.M., Gyles C.L. Colibacillosis. In: Zimmerman J.J., Karriker L.A., Ramirez A., Schwartz K.J., Stevenson G.W., editors. Diseases of Swine. 10 ed. Chichester: John Wiley & Sons; 2012.

2. Ayrle H., Mevisen M., Kaske M., Nathues H., Gruetzner N., Melzig M., et al. Medicinal plants - prophylactic and therapeutic options for gastrointestinal and respiratory diseases in calves and piglets? A systematic review. BMC veterinary research. 2016; 12(1):89.

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