

# Artemisia Animal Health Summary

## Poultry farming



The contribution of *Artemisia annua* :

- boosts poultry immunity
- reduces mortality of chicks, hens and adult chickens from 16% to 5
- reduces the level of common pathogenic bacteria such as Enterobacteriaceae, Escherichia coli and staphylococcus in broilers
- acts as an antiparasitic and prevents coccidiosis and regulates (a major source of mortality in farmed chickens)
- reduces the risk of leucocytozoonosis and the consequences (mortality, weight loss...) linked to this pathology
- increases weight gain
- improves the quality of the animal flesh
- improves resistance to heat stress
- improves the intestinal microflora (proliferation of lactic acid bacteria in the intestine and cecum)
- promotes growth and antioxidant function of broilers.
- could become a substitute for antibiotics in broilers.

The 2022 study by Coroian M, et al. attests to the equivalent prophylactic efficacy on coccidiosis in broilers with a dose of 3.5g of dried *Artemisia annua* leaves per kilo of feed.

### Effects

- boosts poultry immunity
- reduces mortality of chicks, hens and adult chickens from 16% to 5
- reduces the level of common pathogenic bacteria such as Enterobacteriaceae, Escherichia coli and staphylococcus in broilers
- acts as an antiparasitic and prevents coccidiosis and regulates (a major source of mortality in farmed chickens)

### References

- Shiwei Guo, & al., Artemisia annua L. Aqueous Extract Promotes Intestine Immunity and Antioxidant Function in Broilers, Front Vet Sci, . 2022 Jul 8;9:934021.
- Thierno Ba, Effets de l'incorporation des feuilles d'Armoise annuelle séchées (*Artemisia annua* L.) dans des rations pour poulets, Mémoire de fin d'étude pour l'obtention du Diplôme d'Ingénieur Agronome Option : Productions Animales, 2015, École Nationale Supérieure d'Agriculture (ENSA) Département Productions Animales
- .Randa M. Alarousy, Mostafa M. Eraqi, Hany H. Abd Elhamid and Johra Khan, « Antimicrobial Activity of the Essential Oil Extracted from *Artemisia Annua* », World Journal of Pharmaceutical Research Volume 7, Issue 18, 1402-1417.
- Naidoo, V., McGaw, L. J., Bisschop, S. P. R., Duncan, N., & Eloff, J. N. (2008). The value of plant extracts with antioxidant activity in attenuating coccidiosis in broiler chickens. Veterinary Parasitology, 153(3-4), 214–219.

	Drgan L, Györke A, Ferreira JF, Pop IA, Dunca I, Drogan M, Mircean V, Dan I, Cozma V. « Effects of Artemisia annua and Foeniculum vulgare on chickens highly infected with Eimeria tenella (phylum Apicomplexa) », <i>Acta Vet Scand</i> (2014)
	Allen PC, Lydon J, Danforth HD, Effects of components of Artemisia annua on coccidia infections in chickens, <i>Poultry Science Volume 76, Issue 8, 1 August 1997, Pages 1156-1163</i>
- reduces the risk of leucocytozoonosis and the consequences (mortality, weight loss...) linked to this pathology	Yu-Huan Chiang, Yen-Cheng Lin, Sheng-Yang Wang, Yen-Pai Lee, Chih-Feng Chen, Effects of Artemisia annua on experimentally induced leucocytozoonosis in chickens, <i>Poultry Science Volume 101, Issue 4, April 2022</i>
- increases weight gain	Song, Z. H., et al., Effects of dietary supplementation with enzymatically treated Artemisia annua on growth performance, intestinal morphology, digestive enzyme activities, immunity, and antioxidant capacity of heat-stressed broilers, <i>Poultry science 97.2 (2018)</i>
- improves the quality of the animal flesh	Panda, Arun K., and Gita Cherian. « Tissue tocopherol status, meat lipid stability, and serum lipids in broiler chickens fed Artemisia annua », <i>European Journal of Lipid Science and Technology 119.2 (2017)</i>
- improves resistance to heat stress	Saracila, M., et al., « Artemisia annua as phytogenic feed additive in the diet of broilers (14-35 days) reared under heat stress (32 °C) », (Artemisia annua comme additif alimentaire phytogénique dans l'alimentation des poulets de chair (14-35 jours) élevés sous stress thermique (32 °C), <i>Brazilian Journal of Poultry Science 20.4 (2018)</i>
- improves the intestinal microflora (proliferation of lactic acid bacteria in the intestine and cecum)	Panaite, T. D., et al., « Influence of Artemisia Annua on Broiler Performance and Intestinal Microflora », <i>Brazilian Journal of Poultry Science 21.4 (2019)</i>
- promotes growth and antioxidant function of broilers.	Guo, Shiwei, et al. « Artemisia annua L. aqueous extract as an alternative to antibiotics improving growth performance and antioxidant function in broilers », <i>Italian Journal of Animal Science 19.1 (2020)</i>
- could become a substitute for antibiotics in broilers	Coroian, M.; Pop, L.M.; Popa, V.; Friss, Z.; Oprea, O.; Kalmár, Z.; Pintea, A.; Bors, an, S.-D.; Mircean, V.; Lobontiu, I.; et al. « Efficacy of <i>Artemisia annua</i> against Coccidiosis in Broiler Chickens: A Field Trial », <i>Microorganisms, 10, 2277 (2022)</i> <a href="https://doi.org/10.3390/microorganisms10112277">https://doi.org/10.3390/microorganisms10112277</a>

## Pig farming

- reduces oxidative stress
- improves lactation performance
- increases piglet weight at weaning

### Effects

- reduces oxidative stress

Liang Xiong & al. Review Article Nutritional strategies to alleviate oxidative stress in sows Animal Nutrition Volume 9, June 2022, Pages 60-73

- improves lactation performance

Liang Xiong, Wen Fei Zhang, & al. « Dietary Supplementation of Enzymatically Treated Artemisia annua L. Improves Lactation Performance, Alleviates Inflammatory Response of Sows Reared Under Heat Stress, and Promotes Gut Development in Preweaning Offspring », Frontiers in Veterinary Science | 1 March 2022 | Volume 9 |

- increases piglet weight at weaning

Zhang W, Heng J, Kim SW, Chen F, Deng Z, Zhang S, Guan W., Dietary enzymatically-treated Artemisia annua L. supplementation could alleviate oxidative injury and improve reproductive performance of sows reared under high ambient temperature. J Therm Biol. 2020 Dec;94:102751.

## Rabbit farming

- Reduces the risk of coccidiosis and improves weight gain
- Improves growth

### Effects

- reduces the risk of coccidiosis and improves weight gain

M. S. Abousekken, M.F. Azazy, A. O. El-Khtam and Walaa K.S. Zaglool, Impact of Artemisia Annua L. Supplementation On Growth Performance and Control of Coccidiosis in Rabbits, Journal of American Science 2015;11(5)

- improves growth

Hippolyte Mekuiko Watsop, & al. Effect of Artemisia annua L. as Substitute to Sulfonamides (Sodium Sulfadimerzine) on Coccidiosis and Growth Performance in Rabbits, Open Journal of Animal Sciences > Vol.12 No.2, April 2022

### References

## **Sheep farming**

<b>Effects</b>	<b>References</b>
- reduces intestinal parasitosis	Cala AC, Ferreira JF, Chagas & al., Anthelmintic activity of Artemisia annua L. extracts in vitro and the effect of an aqueous extract and artemisinin in sheep naturally infected with gastrointestinal nematodes. Parasitol Res. 2014 Jun;113(6):2345-53. Ives Charlie da Silva, Pedro Melillo de Magalhães, I& al, « Anthelmintic activity of Artemisia annua in sheepmodel », Journal of Medicinal Plants Research, Vol. 11(7), pp. 137-143, 17 February, 2017

## **Cattle farming**

- decreases the incidence of Staphylococcus aureus, Streptococcus agalactia was 20%; Shigella flexneri, Escherichia coli, Listeria monocytogenes and Candida albicans in milk
- supports the metabolism of lipids in the mammary gland
- acts as an anti-inflammatory protects the udder from mastitis

<b>Effects</b>	<b>References</b>
- decreases the incidence of Staphylococcus aureus, Streptococcus agalactia was 20%; Shigella flexneri, Escherichia coli, Listeria monocytogenes and Candida albicans in milk	Randa M. Alarousy, Mostafa M. Eraqi al al, « Antimicrobial Activity of the Essential Oil Extracted from Artemisia Annua », World Journal of Pharmaceutical Research Volume 7, Issue 18, 1402-1417.
- supports the metabolism of lipids in the mammary gland	.Kun Hou, Jinjin Tong, Hua Zhang, Shan Gao, Yuqin Guo, Hui Niu, Benhai Xion, Linshu Jiang, « Microbiome and metabolic changes in milk in response to artemisinin supplementation in dairy cows. », AMB Express. 2020 Aug 24;10(1):154
- acts as an anti-inflammatory protects the udder from mastitis	.Jie Song, Yao Hu Wang, Lifang Wang & Changjin Ao, « Ethanol Extract of Artemisia Annua Prevents LPS-Induced Inflammation and Blood-Milk Barrier Disruption in Bovine Mammary Epithelial Cells », Animals (Basel). 2022 May 10;12(10):1228.

## **Fish farming**

- promotes the intestinal microbiota of fish.
- improves the feed efficiency of the given food and the performance of the Nile tilapia.

### **Références**

Michelly Pereira Soares et al, Influences of the alcoholic extract of Artemisia annua on gastrointestinal microbiota and performance of Nile tilapia, Aquaculture, Available online 18 June 2022, 738521 In Press, Journal Pre-proof