PARASTROY S
(霸虫灵S)

Natural Anthelmintic
(天然驱虫剂)

Win Men Biotech SDN. BHD.
雲門生物科技有限公司

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Helminth of pigs (猪的蠕虫)

- Helminths are common in pigs and often overlooked problem that can cause significant economic losses. (蠕虫在猪中很普遍但却时常被忽略，从而导致重大的经济损失。)

- Some of these helminths are zoonotic in nature and have the potential to cause significant health threats in infected humans. (有些猪蠕虫能传染给人类，对受感染的人类造成严重的健康威胁。)

Transmisson (传染)

- Ways of transmisson (传染方式):

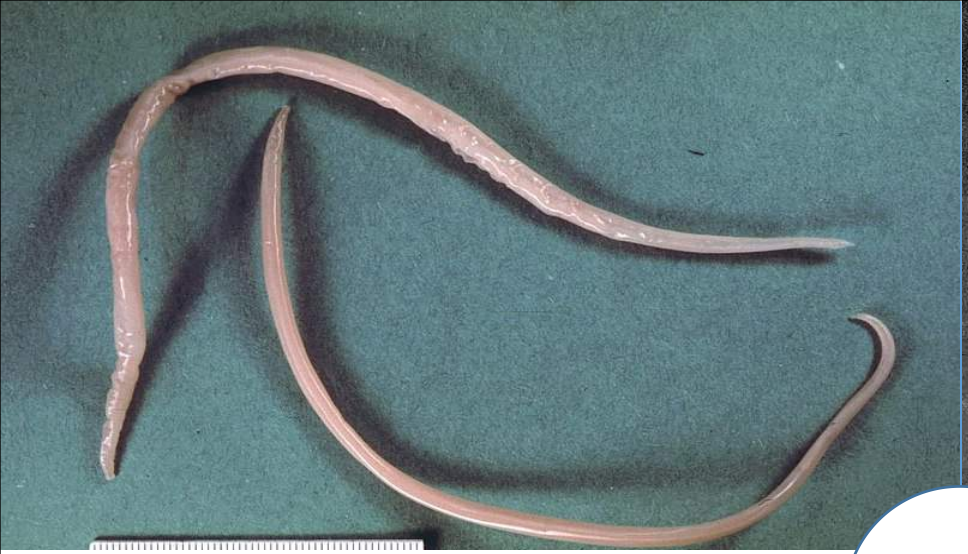
Orally
(口服)

Skin penetration
(皮肤渗透)

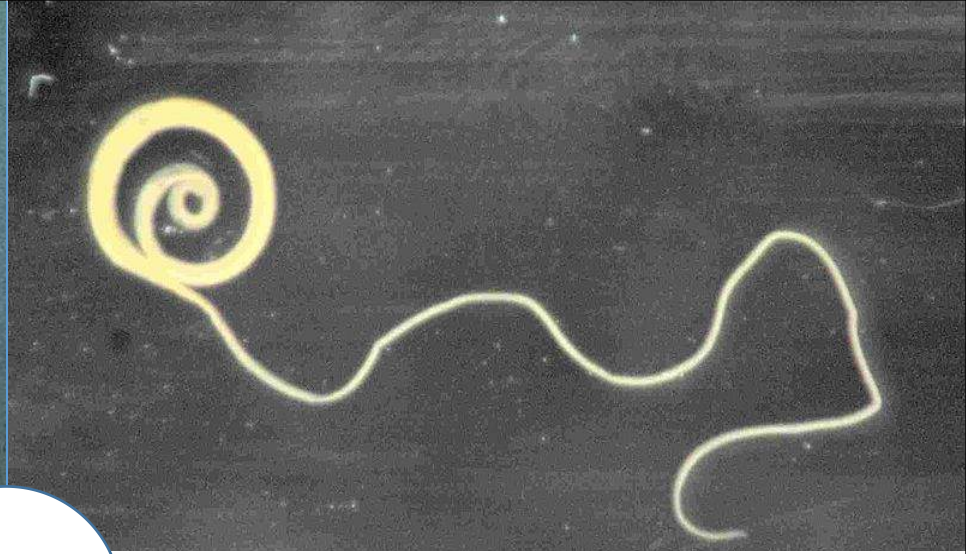
Intermediate host
(中间宿主)

Basic symptoms (基本症状)

- Helminths in pigs can result in (蠕虫会导致猪):
  - loss of appetite (没食欲)
  - weight loss (体重下降)
  - poor growth rate (生长速度差)
  - reduced fertility of sows (母猪的繁殖力下降)
  - high cost of treatment (治疗费用高)
  - organ and carcass condemnation (器官和胴体受损)
  - synergistically increase the effect of other pathogens or even death in severe cases (协同增加其他疾病，在严重的情况下甚至会导致死亡)



Roundworm (蛔虫) - *Ascaris suum*

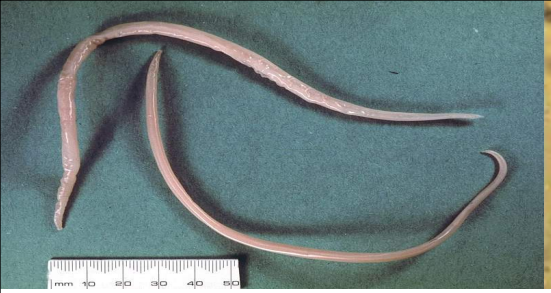
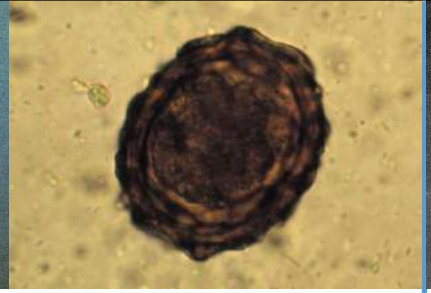


Whipworm (鞭虫) - *Trichuris suis*

Common helminths of pigs (最常见的猪蠕虫)

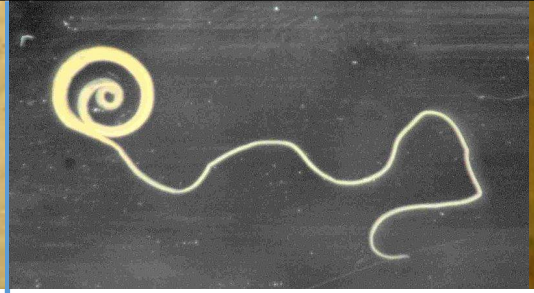
Nodular worm (结节虫) - *Oesophagostomum spp.*

Threadworm (线虫) - *Strongyloides ransomi*

- Worms: pinkish, large and stout (up to 2.5 mm thick), males are up to 25 cm long with a slightly curled tail, females are up to 40 cm long and are 2-5 mm thick. (虫：粉红色，大而粗壮（高达2.5 mm厚），雄长达25 cm，尾巴稍微卷曲，雌长达40 cm，厚2-5 mm。)
- Eggs: medium size (56-87 x 46-57 µm), subspherical, yellowish-brown, thick-shelled with irregularly mammillated. (蛋：中等大小（56-87 x 46-57 µm），亚球形，黄褐色，厚壳，表面不光滑。)

Roundworm (蛔虫) - *Ascaris suum*




- Worms: whitish, medium-sized (3.5-8 cm long), whip-like tail. (虫：白色，中等大小（3.5-8 cm长），尾巴呈鞭状。)
- Eggs: medium sized (70-80 x 30-42 µm), lemon-shaped, yellow brown, thick-shelled with a projecting plug at each end. (蛋：中等大小（70-80 x 30-42 µm），柠檬形，黄褐色，壳厚，在两端各有一个突出的塞子。)

Whipworm (鞭虫) - *Trichuris suis*

Appearance (样貌)

Nodular worm (结节虫) - *Oesophagostomum spp.*

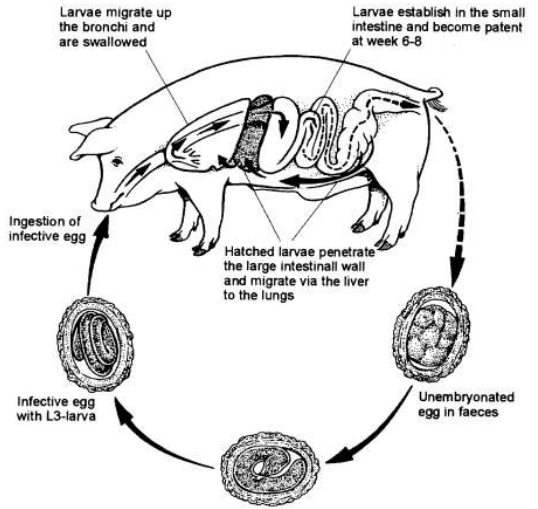
- Worms: white, 1.0-2.5 cm long and stout with body often slightly curled. (虫：白色，长1.0-2.5 cm，粗壮，身体常稍微卷曲。)
- Eggs: strongylid-type. (蛋：strongylid类型。)


Threadworm (线虫) - *Strongyloides ransomi*

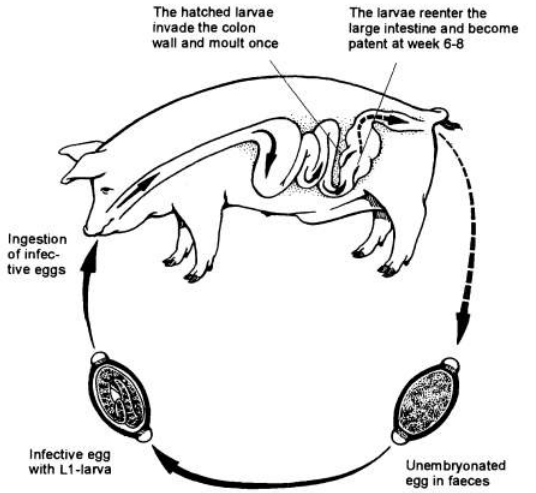
- Worms: colourless, small, ±6 mm long. The free-living worms are of adult males and females. The parasitic worms consists of parthenogenetic females only. Females are ovoviviparous. (虫：无色，很小，长±6 mm。成年雄虫和成年雌虫是自由生活的。寄生虫是由能无性繁殖的雌虫组成。蛋是在雌虫体内发育成熟。)
- Eggs: medium-sized (50-60 x 25-30 µm), oval, thinshelled, and larvated. (蛋：中等大小（50-60 x 25-30 µm），椭圆形，薄壳且有幼虫。)


The life cycle (生命周期)

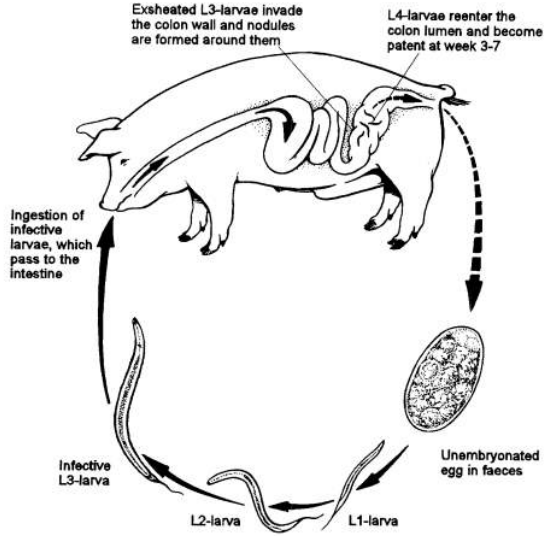
Roundworm (蛔虫) - *Ascaris suum*



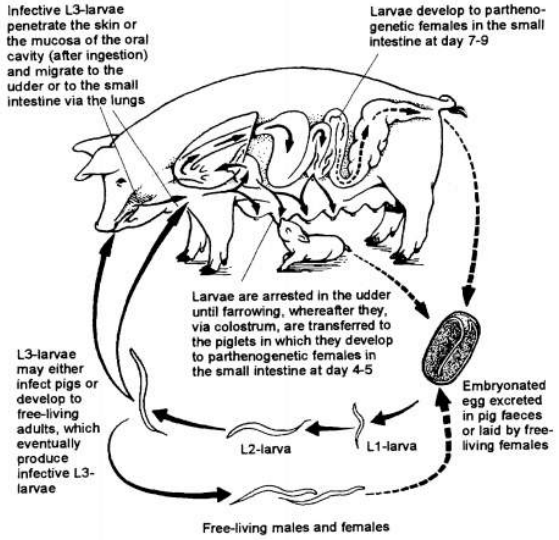
Whipworm (鞭虫) - *Trichuris suis*



Nodular worm (结节虫) - *Oesophagostomum spp.*



Threadworm (线虫) - *Strongyloides ransomi*



Clinical signs (症状)

- Clinical signs are rarely seen in adult pigs. (大猪中很少见到症状。)
- Acute phase of the infection which is caused by the larvae migrating in the lungs and liver shows frequent coughing and liver milk spot. (由幼虫在肺部和肝脏中迁移引起的急性期感染会表现出频繁的咳嗽和肝奶斑。)
- Clinical signs are mainly seen in piglets. (症状主要见于仔猪。)
- During the migratory phase, piglets may have coughing, dyspnoea and nasal discharge. (在迁移阶段，仔猪会出现咳嗽，呼吸困难和鼻子排出分泌物。)
- In the intestinal phase, piglets have a distended abdomen sensitive to pressure, constipation accompanied by light colic, inappetence, weakness, and retarded growth. (在肠道阶段，仔猪显示压敏性腹胀，轻度绞痛的便秘，没食欲，虚弱和生长迟缓。)

Roundworm (蛔虫) - *Ascaris suum*

- Consumes host's blood and causes colitis, enteritis, diarrhea with mucus and blood, loss of appetite, weight loss and retarded growth. (饮食宿主的血液，并导致结肠炎，肠炎，带粘液和血的腹泻，没食欲，体重减轻和发育迟缓)

Whipworm (鞭虫) - *Trichuris suis*

Nodular worm (结节虫) - *Oesophagostomum spp.*

- Heavy infection by larvae encysted in the intestinal wall may lead to blood-stained mucoid diarrhea, inappetence, general weakness, progressive weight loss, retarded growth, and anaemia. (幼虫在肠壁的大量感染可能导致血染的粘液样腹泻，没食欲，全身无力，体重逐渐减轻，生长迟缓和贫血。)
- Associated with the “thin sow syndrome”, where Infected sows will result in decreased in the number of live newborn piglets and smaller average weight of the piglets. (与“瘦母猪综合症”相关，受感染的母猪将导致新生活仔猪数量减少，仔猪平均体重降低。)

Threadworm (线虫) - *Strongyloides ransomi*

During the migratory phase, clinical signs are rarely observed. (在迁移阶段，很少观察到症状。)

- In the intestinal phase, piglets show inappetence, intermittent watery diarrhea, weight loss, reduced growth rate, anaemia, apathy, sunken eyes with purulent discharge, and frothy discharge from the nose. (在肠道阶段，仔猪表现出没食欲，断续性水泻，体重减轻，生长速度降低，贫血，迟钝，眼睛凹陷带脓分泌物和鼻子排出泡沫分泌物。)
- Heavily infected piglets develop severe diarrhea when 10–14 days old, with mortality rate as high as 75%. (严重感染的仔猪在10-14天大时会出现严重腹泻，死亡率高达75％。)

Anthelmintic drugs (驱虫药)

- Helminthic prevention and treatment commonly rely upon chemical anthelmintic drugs. (蠕虫病的预防和治疗通常依靠化学驱虫药。)
- Chemical anthelmintic resistance in livestock is increasing globally due to the over-use/misuse of chemical anthelmintics.(化学驱虫药的过度使用/滥用已导致耐药性在全球的畜牧中逐渐增加。)
- In the USA, South America, and South Africa, chemical anthelmintics, such as benzimidazoles, avermectins, are now completely ineffective in many regions. (在美国，南美洲和南非，化学驱虫药，如benzimidazole和avermectin，已在许多地区完全无效。)

Spices (香料)

- Before the development of chemical anthelmintics, humans have used various spices to deal with parasites. (在化学驱虫药被开发之前，人类已经使用各种香料来处理寄生虫。)

- With the advancement of science, it was discovered that the spices' secondary metabolites have the antiparasitic function. (随着科学的进步，人们发现了香料的次生代谢产物具有抗寄生虫功能。)

Secondary metabolites (次生代谢产物)

- Secondary metabolites are biological active compounds that play a role in defense. (次生代谢产物是生物活性化合物，在防御中发挥作用。)
- After use, they have no residues, no toxic side effects on animals and their products, and are not easy to develop drug resistance. (使用后对动物及其产品无残留物、无毒副作用，不易产生耐药性。)
- Therefore, exploiting the diversity and bioactivity of spices' secondary metabolites may be a viable alternative. (因此，开发各种香料次生代谢产物的多样性和生物活性是一个可行的选择。)

PARASTROY S (霸虫灵S)

- With regards, Win Men's R&D Department turned to this direction and set out to use the secondary metabolites of spices as anthelmintic. (为此，云门研发部朝着这个方向，着手利用各种香料的次生代谢产物来驱虫。)

- Through extensive research and development, Win Men's Fatty Acid Series presenting **PARASTROY S**, a natural anthelmintic. (通过广泛的研发，云门的脂肪酸系列推出了**霸虫灵S**，一种天然驱虫剂。)

Mode of action (作用模式)

Direct mode (直接模式)

Restricting helminth growth and reproduction, and causing helminth death. (限制蠕虫的生长和繁殖，并导致蠕虫死亡。)

- Decreasing egg count. (减少蛋的数量。)
- Decreasing egg hatchability. (降低蛋的孵化率。)
- Affecting larval establishment, larval motility and mortality. (影响幼虫的形成，幼虫的活动力和死亡。)
- Impairing helminth development. (损害蠕虫的发育。)

Indirect mode (间接模式)

Regulating the host's immune system to defend against helminth. (调节宿主的免疫系统来抵抗蠕虫。)

- Increases the activity of T cells, macrophages and other immune cells to defend against helminth. (增加T细胞，巨噬细胞和其他免疫细胞的活性来抵抗蠕虫。)

In vitro test (室内实验)

- In vitro test showed that (In vitro试验显示：):
  - **PARASTROY S** inhibits helminth's egg hatching at 0.10% and above. (霸虫灵S在0.10%或以上能抑制蠕虫蛋孵化。)
  - **PARASTROY S** inhibits larval development at 0.10% and above. (霸虫灵S在0.10%或以上能抑制幼虫发育。)
  - **PARASTROY S** paralyzes larval at 0.10% and above. (霸虫灵S在0.10%或以上使幼虫不活跃。)

Treatment	Dosage	Egg hatch assay (48 hours after treatment)	Larval development test (7 days after treatment)	Larval paralysis test (24 hours after treatment)
Control	-	0%	0%	0%
Albendazole	0.0125%	100%	100%	100%
PARASTROY S	0.20%	100%	100%	100%
	0.10%	**100%**	**100%**	**100%**
	0.05%	96.3% ± 2.5%	87.5% ± 5.7%	45.7% ±8.3%
	0.01%	44.3% ± 2.8%	27.8% ± 7.4%	16.7% ± 7.0%
	0.001%	0%	0%	0%

Conclusion (结论)

- Drug resistance is not only a future threat; it is present right here and now. It is one of the biggest threats to global health, food security, and development today as many drugs have started to fail. (耐药性不仅是未来的威胁，而是现在就存在着。 它是当今对全球健康，粮食安全和发展的最大威胁之一因为许多化学药物已经开始失效。)

- **PARASTROY S** is a natural anthelmintic that has the same effects as chemical anthelmintics but with no residues, no toxic side effects and is not developing drug resistance. It is a good alternative. (**霸虫灵S**是一种天然驱虫剂，具有与化学驱虫药相同的功效，但却无残留物，无毒副作用，不产生耐药性。是一个很好的替代品。)

Directions for use (推荐使用指南)

- During the gestation stage, mix 1 kg **PARASTROY S** in 1 ton of sow feed for one week per month. (母猪前期: 每个月添加1公斤**霸虫灵S**在1公吨的母猪饲料中长达一星期。)
- During the lactation stage, mix 1 kg **PARASTROY S** in 1 ton of sow feed for the whole lactating period. (母猪后期: 长期添加1公斤**霸虫灵S**在1公吨的母猪饲料中。)
- No withdrawal period. (无停药期。)

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