

## Prevention of Estrus in the Queen with Chlormadinone Acetate Administered Orally

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**ABSTRACT.** The possibility of estrus prevention in the queen by the oral administration of chlormadinone acetate was examined. The animals used were 29 mature and 15 immature queens. For 16 mature females, 4–12.5 mg was given daily by mouth for 7 days every 3 months. Ten of the 16 queens given this treatment came into estrus within 4 months of the first treatment. For 28 females including the immature, 2–12.5 mg was given once a week throughout the experiment. This treatment prevented estrous activity for at least 1 year. In the queens in this study, the side effects were not observed excepting an increase in body weight during treatment. Our results showed that oral administration of this drug weekly is safe and reliable for long-range prevention of estrus in queens.—**KEY WORDS:** chlormadinone acetate, prevention of estrus, queen.

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Synthetic progestational compounds have been used to prevent, delay, or suppress estrus in the bitch and queen [3–5]. Chlormadinone acetate (CAP) is a synthetic progestosterone with strong progestational activity [2]. Estrus in the bitch can be prevented by this drug given orally once a week [6] or by intramuscular injection twice a year [7] without undesirable side effects. In the queen, an intramuscular injection every 3 months prevents estrus [1]. However, the effects on estrous activity of this progestin given orally in the queen are unknown. Oral administration causes less discomfort than intramuscular injection, so use of this route, if possible, is preferable. The purpose of this study was to examine the possibility of estrus prevention in the queen by the oral administration of CAP.

The animals used were 29 mature queens (1–4 years old, weighing 3.0–4.2 kg) and 15 immature queens (5–9 months old, weighing 2.0–3.2 kg). Two tablet forms of the progestin were used (Lutoral, 2 mg, Shionogi & Co., Ltd., Osaka; Prostal, 25 mg, Teikoku Hormone Mfg. Co., Ltd., Tokyo). For the mature females, 4 or 12.5 mg was given daily by mouth for 7 days every 3 months, or else 2 or 6.25 mg was given once a week throughout the experiment. For mature females in estrus at the start of the treatment, the first dose of the drug was of 12.5 or 25 mg, and the second and later weekly doses were of 2 or 12.5 mg. For the immature females, 2 mg of the drug was given by mouth once a week. The external genitalia of all queens were

examined by eye daily after the start of treatment. General physical examinations, including abdominal palpation of the mammary glands, were done regularly.

CAP given daily for 7 days every 3 months to mature females did not prevent estrus for long. Ten of the 16 queens given this treatment came into estrus within 4 months of the first treatment (Table 1). Brandt [1] reported that an intramuscular injection of this compound every 3 months prevented estrus in the queen, but in our study, its oral administration every 3 months did not.

Oral administration once a week to mature females prevented estrous activity for at least 1 year. Oral administration once a week to immature females prevented estrous activity for at least 2 years (Table 2). Oral administration of progestin interrupted estrus already begun and suppressed it (Table 3). The effect began

Table 1. Prevention of estrus by oral administration of chlormadinone acetate daily for 7 days every 3 months to mature queens

Daily dose (mg)	No. of queens	Observation period (months)	No. of queens entering estrus
4	8	2–4(3.3) <sup>a)</sup>	5(63) <sup>b)</sup>
12.5	8	1–4(3.1)	5(63)

a) Mean.

b) %.

Table 2. Prevention of estrus by oral administration of chlormadinone acetate once a week to immature and mature queens

Weekly dose (mg)	No. of queens	Observation period (months)	Body weight (kg)		No. of queens entering estrus
			Start of treatment	12 months after start	
Immature queens					
2	15	24–43(30.1) <sup>a)</sup>	2.6±0.1 <sup>b)</sup>	3.9±1.0**	0
Mature queens					
2	7	12–15(14.5)	3.4±0.2	3.9±0.2**	0
6.25	3	12–16(14.5)	3.4±0.2	3.4±0.2	0

\*\*  $P < 0.01$  (paired *t*-test).

a) Mean.

b) Mean±SEM.

Table 3. Prevention of estrus by oral administration of chlormadinone acetate once a week in queens in estrus at the time of the first dose

Queen No.	Dose (mg)		Observation period (months)	Entered estrus?
	First	Weekly		
101	25	2	34	No
102	25	2	19	No
103	12.5	12.5	12	No

within 72 h of the first treatment.

When using progestin, the risk of the induction of false pregnancy and of the development of mammary nodules and uterine inflammation should be kept in mind [3]. In the queens in this study, these side effects were not observed. However, there was an increase in body weight during treatment (Table 2). Body weight increases in bitches given CAP to prevent estrus [6]. The mechanism how CAP causes body weight increase is not known. Our results showed that oral administration of this drug weekly

is safe and reliable for long-range prevention of estrus in queens.

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