

Methods of animal euthanasia (chicken)

Irène Gabriel, Christine Pissavin-Castillo, Lotte Bjerrum, Maria Francesch, Henrik Christensen, Frederic Hilbert, Julie Putterflam, Cesare Castellini

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Method of animal euthanasia (chicken) for experiments for UE project PoultryFlorGut (2005-2008)

Writer : INRA : Irène GABRIEL gabriel@tours.inra.fr
Co-writers : Christine Pissavin-Castillo, Lotte Bjerrum, Maria Francesch, Henrik Christensen, Frederic Hilbert, Julie Putterflam, Cesare Castellini

Each partner will use the method that he is trained with, providing that it is in agreement with the scientific objectives and the rules on animal welfare. To match the scientific objective is necessary to minimize peristaltic movement while the animals are dying to avoid unwanted movements of the digestive contents.

Table 1 : Methods used by the different partners

	Partner	Method used
Experimental condition	AFSSA	Electronarcose Lethal dose of anesthesic (intravenous injection of pentobarbital sodic, 82 mg/ kg)
	DFVF	Cranial blow followed by decapitation
	INRA	Lethal dose of anesthesic (intracardiac or intravenous injection of pentobarbital sodic, 82 mg/ kg) CO_2
	IRTA	Cervical dislocation Anaesthesic overdose intravenous injection Tiobarbital: 150 mg / kg body weight
	KVL	Cervical dislocation Decapitation
	VU	Slaughtering house (Electric choc and bleeding)
Field condition	ITAVI	Knocked out and bleed
	UNIPG	Cervical dislocation

Table 2. Effect of euthanasia method on digestive tract
Little information are available, particularly on poultry

Killing method	Animal species	Effect on digestive tract
Pentobarbital sodic	Small mammals (rat, mice, guinea pig, rabbit)	Intracardial injection suitable for histological examination of abdominal viscera (Feldman et Gupta, 1976)
	rat	intraperitoneal pentobarbital overdose modifies colon smooth muscle contractility (Butler et al, 1990)
		Orally or intravenously administration of pentobarbital depresses gastrointestinal smooth muscle contractility and tends to decrease the tonus of the gastrointestinal musculature and the amplitude of rhythmic contractions (Harvey, 1980)
	rabbit	Intraveinous pentobarbital overdose has no effect on ileal smooth muscle contractility (Butler et al, 1990)
CO2	Small mammals (rat, mice, guinea pig, rabbit)	suitable for histological examination of abdominal viscera (Feldman et Gupta, 1976)
	rat	no effect on colon smooth muscle contractility (Butler et al, 1990)
	rabbit	no effect on ileal smooth muscle contractility (Butler et al, 1990)
	Chicken	no movement of caecal microflora observed by scintigraphy between live and CO2 slaughtered birds ((Isabelle Virlogeux , INRA, PII, com. Pers.).

In order to ovoid movement of digestive content, it is better to use a rapid method of euthanasia, and as soon as bird is dead, to open the abdominal cavity, ligate the intestinal segment, and remove it from the abdominal cavity.

Table 3. **European rules according to Close et al (1996, 1997)**
For more details see Close et al (1996, 1997)

Agent	Rapidity	Efficacity	Facility	Sécurity	Validity De 1 à 5	Comments
Pentobarbital	++	++	+	+	5	Appropriate
T - 61	++	++	+	+	4	Appropriate for small birds
CO2	++	++	++	++	4	Appropriate
Halothane Isoflurane	++	++	++	+	4	Appropriate
Cervical dislocation	++	++	-	++	4	Birds less than 200 g [1]
Microwave irradiation	++	++	-	++	3	By experienced people
Blow	++	++	-	++	3	Birds less than 250 g [1]
CO	+	+	++	-	2	Dangerous
Electric shock	+	+	+	-	1	Dangerous

[1] Broiler chicken of about 10-11 d.

Remarks: decapitation except motivated experimental constraint, and bleed can be acceptable only if animals have been submitted to previous sedation (chemical or physical means)

Figure : Appendix A to the European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes, Guidelines for accomodation and care of animals(Article 5 of the Convention, **http://conventions.coe.int/treaty/en/treaties/html/123-A.htm#3.12**):

3.12. Humane killing of animals

3.12.1. All humane methods of killing animals require expertise which can only be attained by appropriate training.

3.12.2. A deeply unconscious animal can be exsanguinated but drugs which paralyse muscles before unconsciousness occurs, those with curariform effects and electrocution without passage of current through the brain, should not be used without prior anaesthesia.

Carcass disposal should not be allowed until *rigor mortis* occurs.

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