

## INTRODUCTION AND OBJECTIVES

Superfecundation is defined as the fertilization of more than one oocyte with sperm from different males. This phenomenon has been described in different mammalian species such as human, bovine, equine, canine and feline.

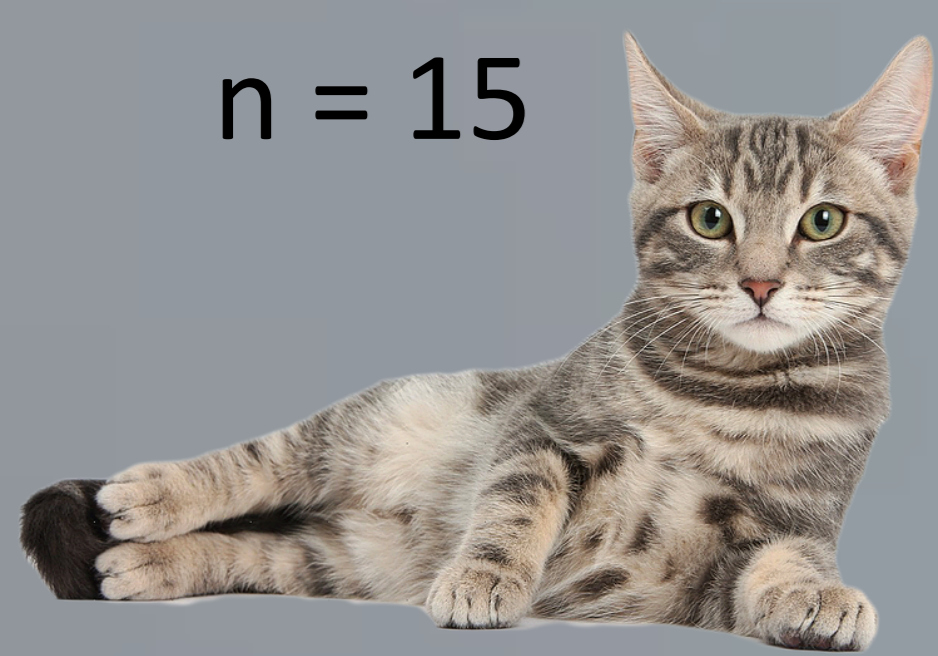
Superfecundation in queens is accepted by the scientific community but there is not much research focused on this topic. There are only two studies: Say et al., 1999 and Natoli et al., 2007.

The aim of this study is to know the prevalence of superfecundation in Barcelona areas.

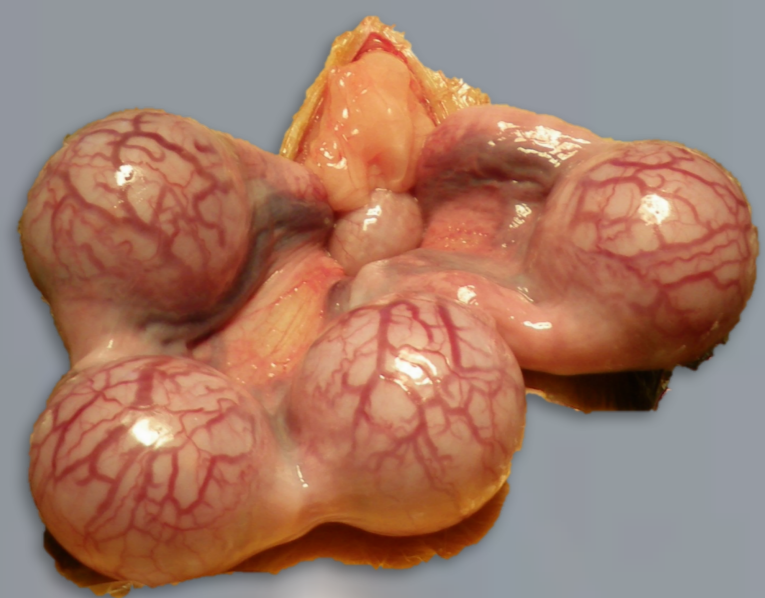
## MATERIAL AND METHODS

### Animals - Samples

n = 15



≥ 3 fetuses



Freeze at -80 °C

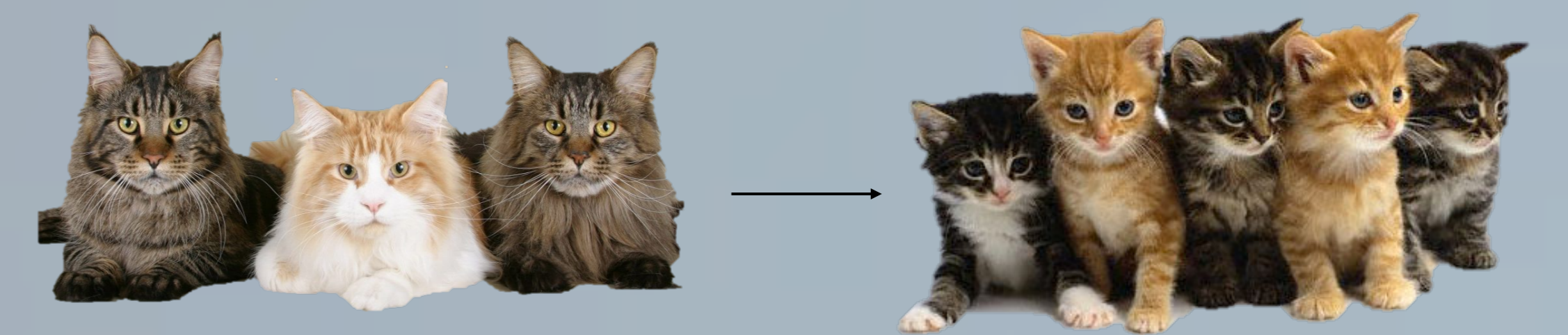
### Laboratorial procedure

1. DNA extraction and purification
2. PCR with microsatellites
3. Electrophoresis in capillary gel

Table 1. Microsatellites used

Microsatellites	
FCA069	FCA229
FCA075	FCA310
FCA105	FCA441
FCA149	FCA678
FCA220	Zn-finger XY

### Determination of paternity:



GenElute™ Blood Genomic DNA  
PureLink™ Genomic DNA Mini Kit

SimpliAmp Thermal Cycler



ABI Prism 3730 Genetic Analyzer

GeneScan 3.7

vetgenomics

## RESULTS

Litters: 6/15: only 1 father  
9/15: > 1 father \*

$\chi^2$  : non-significant

60% of superfecundation

\* minimum 3 paternal alleles to confirm

Table 2. Heteropaternal litter

Samples	FCA069	FCA310	FCA149	FCA075	FCA441	FCA229	FCA105	FCA678	FCA220	Zn-finger XY
Mother	102 104	133 133	129 131	125 127	152 156	165 165	192 194	189 195	215 215	164 164
Fetus 1	90 104	121 133	131 131	123 127	152 160	158 165	192 194	193 195	209 215	161 164
Fetus 2	102 106	133 133	131 133	127 127	152 152	163 165	192 194	187 189	211 215	164 164
Fetus 3	90 102	133 133	131 131	123 127	152 160	163 165	192 194	189 193	209 215	164 164
Fetus 4	102 104	121 133	131 131	123 127	152 160	158 165	194 194	189 193	211 215	164 164
Fetus 5	102 104	133 133	123 131	127 131	152 160	163 165	194 194	189 193	209 215	161 164
Fetus 6	104 104	133 133	123 131	123 127	156 164	158 165	192 194	193 195	211 215	164 164
Fathers	90 / 106 / 102 o 104	121 / 133	123 / 131 / 133	123 / 127 / 131	152 / 160 / 164	158 / 163	194	187 / 193	209 / 211	-

Table 3. Homopaternal litter

Samples	FCA069	FCA310	FCA149	FCA075	FCA441	FCA229	FCA105	FCA678	FCA220	Zn-finger XY
Mother	104 108	121 123	123 133	129 133	160 160	163 165	180 196	189 189	205 209	164 164
Fetus 1	108 108	121 133	123 123	133 133	152 160	163 163	196 196	189 189	209 211	164 164
Fetus 2	108 108	121 123	129 133	129 133	152 160	158 163	180 196	189 189	209 211	164 164
Fetus 3	104 104	121 121	129 133	133 133	152 160	158 165	180 194	189 193	205 211	164 164
Fetus 4	104 104	121 121	129 133	131 133	152 160	158 165	180 194	189 193	205 211	161 164
Fetus 5	108 108	121 121	123 123	133 133	152 160	158 165	180 196	189 193	209 211	164 164
Fathers	104 / 108	121 / 133	123 / 129	131 / 133	152	158 / 163	194 / 196	189 / 193	211	-

## DISCUSSION

Superfecundation studies:

- Say et al., (1999): 80%.
- Natoli et al., (2007): 78%.
- Ramon: 60%.

This variation can be explained by some reasons:

1. Low number of samples.
2. Only include queens with ≥ 3 fetuses.
3. Different type of current feline colonies.
4. Results masked by the lack information from the males.
5. Embryo losses can cover up the real percentage.

## CONCLUSIONS

- Superfecundation does exists in Barcelona.
- The percentage of superfecundation is of 60%.
- It is necessary to increase the sample to give more conclusive results.

## References

- Say L, Pontier D, Natoli E. 1999. High variation in multiple paternity of domestic cats (*Felis catus* L.) in relation to environmental conditions. Proc R Soc B Biol Sci. 266(1433):2071-2074.
- Natoli E, Schmid M, Say L, Pontier D. 2007. Male reproductive success in a social group of urban feral cats (*Felis catus* L.). Ethology. 113(3):283-289.