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Meat and their products may contribute to the dissemination of infectious diseases, among which African Swine Fever (ASF) represents high risk.

Some animals in certain phases of the disease (incubation period, inapparent carriers of virus, chronics, etc.) may escape to the postmortem inspection in slaughterhouse. Meat of these animals may be used for manufacturing commercial products that may contribute to the diffusion of the disease if their residues are used to feed pigs.

This situation compels us to know the resistance of ASF virus to the heat and to the different substances that the pig tissues used in the preparation of derivative products are submitted to.

Studies on ASF virus to know its survival in industrial products are few (SANCHEZ BOTIJA, 1962, MARTIN MENDES, 1964 and McKERCHER et al., 1968) and for this reason it is interesting the knowledge of the survival of ASF virus in these products.

Material and methods. As source of virus pig weighting between 120-130 Kgs. were infected experimentally with an ASF virus that kills in 7-9 days. They were sacrificed at 4 d.p.i., when clinical symptoms were evident.

Product preparation: Cooked ham, large sausage (Salchichón) and bacon, were made. The muscular mass destined to elaborate cooked ham was submitted to the effect of a brine at a ratio of 28 Kgs. for 100 Kgs. of meat and then it was packed in cans. The cans were submitted to different temperatures and times, in open water bath.

The internal temperature of the ham was of 60° C, 75° C and 114° C. Some cans were kept as unheated control.

The muscular parts with low contents of fat were used to elaborate large sausage (salchichón). The meat was packed into natural pig gut of 50-60 mm. diameter and kept in room at a temperature of 17-18° C and humidity of 75-80% for 30-35 days.

Bacon was submitted to a salted in dry with salt and sugar during 3 days. Then washed and transferred to chamber at a temperature of 13-15° C and relative humidity of 75-80% for 21 days.

Investigation of the presence of the virus: The samples were always taken from the middle of the mass and mixed in Hank's solution at a ratio of 1/3. They were triturated in a Virtis homogenizer left for maceration during 12 hours and then centrifugated. The supernatant was sterilized and used to inoculate leucocyte cultures and pig for demonstrating the presence of the virus.

Presence of ASF virus was determined by inoculation in pig leucocyte cultures and examined for hemadsorption and cytopathic effect. Final exclusion of presence of the virus was made in all samples after pig inoculation.

Results. The results evidenced titres per gram of tissues in pig at slaughter time, varied between 10^6 to $10^{6.75}$ in blood, spleen and lymph nodes and between $10^{4.25}$ to $10^{5.2}$ in muscle.

Titres of virus found in unheated ham, oscillated between $10^{3.4}$ to 10^5 per gram of product, with an average of $10^{4.2}$.

Cooked ham submitted at different temperatures 60° C, 75° C and 114° C were all negative for virus isolation in leucocyte cultures and in the biological test.

Virus persistence in large sausage (salchichón) and bacon, first determination was made at 30 days post-elaboration, because they are marketed at this time. During the experience time, part of these products were maintained at 4° C and the rest at room temperature (15-20° C). After 30 days, those kept at 4° C showed a humidity ranging between 35 and 42% and those maintained a room temperature between 18 and 25%.

Determination of virus concentration were made every 30 days. At the time when these products are ready for human consumption (30 days postmanufacturing) they contained concentrations of virus oscillating from 10^3 to $10^{4.9}$ per gram of product.

These concentrations of virus decreased slowly at 60 and 90 days, to become negative to HAD and inoculation to the pig at 120 days postmanufacturing.

Discussion

Ingredients used to elaborate cooked ham did not demonstrated any effect on the virus 5 days after their addition.

Temperatures generally used in the elaboration of cooked ham (70-75° C) demonstrated to be fully effective for inactivating the virus and eliminated completely any risk of dissemination of the disease with this product in case to be elaborated with infected meat.

In the rest of uncooked product (large sausage and bacon) a period of 4 months was needed for complete inactivation of the virus. This period of time was significantly shortened if products were maintained at room temperature. These findings confirm us the effect of desiccation on survival of the virus. By the opposite, these products bear a potential danger of ASF transmission if their residues are used to feed pigs within period of time lower than 90 days after manufacturing.

References

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