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# FIBRINOUS PERICARDITIS IN SLAUGHTERED PIGS: IMPACT ON WELFARE, GROWTH PERFORMANCE AND CARCASS AND MEAT QUALITY

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**Abstract:** This study aimed to determine the effects of fibrinous pericarditis on blood welfare indicators, performance indices and carcass and meat quality of slaughtered pigs. From a total of 144 examined pig hearts, the presence of fibrinous pericarditis was recorded in 25.69% cases. The presence of fibrinous pericarditis in slaughtered pigs was significantly associated with decreased ($P<0.0001$) blood lactate and glucose levels. The presence of fibrinous pericarditis in slaughtered pigs was significantly associated with reduced average lifetime daily weight gain ($P=0.0042$), live weight ($P=0.0045$), hot carcass weight ($P=0.0045$), cold carcass weight ($P=0.0045$) and lean meat content ($P<0.0001$). Consequently, pigs showing fibrinous pericarditis produced the lower ($P<0.0001$) percentage of „E" class carcasses, but the higher ($P=0.0079$) percentage of „R" class carcasses. Pigs without fibrinous pericarditis produced the better meat quality, with the higher ($P=0.0465$) percentage of red, firm and nonexudative meat. In contrast, the presence of fibrinous pericarditis in slaughtered pigs was significantly associated with abnormally elevated final meat pH ($P<0.0001$), high water-holding capacity (lower drip loss; $P<0.0001$) and unfavourable dark colour (higher lightness and yellowness; $P<0.0001$). As a result, pigs showing fibrinous pericarditis produced the highest percentage of dark, firm and dry meat ($P=0.0002$). In conclusion, assessing fibrinous pericarditis at the slaughterline has the potential to serve not only as an indirect indicator of pig health and welfare on the farm of origin but also of growth performance, carcass and pork quality.

**Key words:** blood metabolites, heart lesions, pig health, pork quality

# Introduction

Pig breeders and the meat industry aim to produce animals that have a high percentage of high-quality meat. However, intensive pig production increases the risk of different diseases, including subclinical, which represent one of the most significant problems of animal health and welfare (Čobanović et al., 2019a, 2021, 2024). Since subclinical infections occur without visible signs, on-farm clinical examination cannot be considered an effective method of health and welfare assessment (Dalmau et al., 2014). In addition, when assessing the pig welfare on a farm, the risk of spreading infectious diseases between facilities on a farm and between farms significantly increases. Moreover, the welfare evaluating process on the pig farms is very demanding and takes a long time (Dalmau et al., 2014). On the other hand, the assessment of subclinical lesions in the organs at the slaughterline enables much simpler and more financially profitable data collection to conduct epidemiological research and establish a system for monitoring farm animal diseases (Elbers et al., 1992; Scollo et al., 2017). Examination of the presence and degree of subclinical lesions in clinically healthy pigs at the slaughterline is carried out during a regular postmortem examination of the lungs, pleura, hearts, livers and skin (Elbers et al., 1992; Nielsen et al., 2015; Čobanović et al., 2021).

During pluck examination at slaughterline, the pericardial sac is often damaged and usually incomplete due to professional error of slaughterhouse staff during carcass evisceration (Bottacini et al., 2021). As a result, the presence of exudate cannot be detected, and only visual inspection can reveal lesions in the early chronic stages. Accordingly, the only signs of pericarditis detectable at the slaughterline are fibrin and granulation tissue covering the epicardium (Bottacini et al., 2021). In pigs, fibrinous pericarditis is typically secondary to or connected with primary respiratory infections, with inflammation usually spreading from the lungs due to the lymphohematogenous dissemination of infectious agents such as *Mycoplasma* spp., *Haemophilus* spp., *Actinobacillus pleuropneumoniae*, and *Streptococcus* spp. (Buttenschøn et al., 1997; Leps and Fries, 2009; Čobanović et al., 2019a). It has been found that the coexistence of fibrinous pericarditis and pneumonia and pleurisy in slaughtered pigs, indicating a significant role of pathomorphological changes in the lungs in the pathogenesis of heart lesions (Čobanović et al., 2022). Fibrinous pericarditis negatively affects the pig's health and well-being and causes pain despite the absence of specific clinical signs (Bottacini et al., 2021). Although not usually associated with large economic losses, fibrinous pericarditis can lead to direct losses for the meat industry if pig hearts or whole plucks are discarded at the slaughter line (Ceccarelli et al., 2018). In severe conditions, as is the case of constrictive pericarditis, the reduction of performance may occur in fattening pigs, which can be another underestimated and understudied economic loss for primary producers and meat industry (Bottacini et al., 2021). Heart failure in fattening pigs can pose a risk of sudden death during stressful procedures on the farm (e.g. vaccination) and during the pre-slaughter period (e.g. loading, transport and unloading) (Bottacini et al., 2021).

Even though the prevalence and impact of subclinical lesions in the lungs and liver on the performance and quality of pig carcasses and meat have been extensively investigated in recent years (Merialdi et al., 2012; Dalmau et al., 2016; Čobanović et al., 2019b, 2021), data on the frequency of fibrinous pericarditis occurrence in slaughtered pigs are scarce. Recent study (Čobanović et al., 2022) in the Republic of Serbia reported the sings of fibrinous pericarditis in 119 out of a total of 1086 slaughtered pigs, with the prevalence of 10.96%. However, there is not enough data in the available scientific literature on the relationship between the occurrence of fibrinous pericarditis and the performance indices, carcass and meat quality of slaughter pigs. To date, only one study (Čobanović et al., 2022) demonstrated a relationship between appearance of heart lesions and reduced performance indices and deteriorations in carcass quality indicators of slaughtered pigs. Therefore, the aim of this research was to determine the effects of fibrinous pericarditis on blood welfare indicators, performance indices and carcass and meat quality of slaughtered pigs.

## Materials and Methods

The experiment was conducted in the autumn using 144 fattening pigs referring to four shipments, with approximately 35 pigs per shipment. All pigs were of the same genetic background (Large White × Landrace) sows and Pietrain boars, with an average live weight of 113.50 (±15.32) and about 6 months of age. Animals were sourced from the same family farm, specialised in producing fatteners and operated a single fattening unit with a capacity to finish up to 1000 pigs annually. The fattening unit consisted of 20 pens with fenced outdoor access, each housing around 50 pigs. Pigs were kept on a concrete floor without bedding, at an average stocking density of 0.5 m² per pig. Dry pellets were provided *ad libitum* throughout the fattening period and meals were formulated to meet National Research Council nutrient recommendations for swine (National Research Council, 2012). The farm followed a continuous flow management system, with new pigs introduced monthly and departures to the slaughterhouse occurring every week. There was no parasite control or vaccination program for respiratory diseases in place. All pigs underwent the same pre-slaughter treatment, transport conditions, and lairage on the day of slaughter, following the standard marketing conditions for Southeastern Europe and were slaughtered at the same officially registered and controlled slaughter facility of limited capacity, in line with standard industry practice (Čobanović et al., 2020).

Blood samples were collected from each pig immediately after the onset of bleeding. Blood lactate and glucose concentrations were determined within two minutes using portable devices (for blood glucose: GlucoSure AutoCode, ApexBio, Taiwan; for blood lactate: lactate Scout, EKF Diagnostics, Magdeburg, Germany). Both tubes were labeled with corresponding (slaughter number) to ensure traceability.

The hearts of the slaughtered pigs were removed from plucks at the slaughter line and were meticulously labeled with a ticket containing slaughter number to ensure traceability. Heart and pericardial sack were examined via inspection, palpation and incision for macroscopically noticeable lesions typical for fibrinous pericarditis, using two-point scoring system following the Welfare Quality® protocol (2009): score 0 – no visible signs of fibrinous pericarditis; score 1 – the presence of adhesion between the heart and the pericardium. The percentage of affected hearts was determined by calculating the proportion of pig hearts with adhesion between the heart and the pericardium (Welfare Quality® protocol, 2009). The farm-level score was calculated based on the following thresholds: (i) the warning threshold is triggered if the percentage of slaughtered pigs with pericarditis exceeds 5%; (ii) the alarm threshold is triggered if the percentage of slaughtered pigs with pericarditis exceeds 20% (Welfare Quality® protocol, 2009). A single trained investigator conducted the full assessment of fibrinous pericarditis presence, eliminating potential variations between observers. Gender, slaughter number and identification number from farm were also recorded by the same investigator.

The slaughterhouse personnel provided data on carcass composition, which included hot carcass weight, cold carcass weight, backfat thickness, loin thickness, lean meat content, and carcass quality classes. Live weight at slaughter was estimated based on the determined hot carcass weight, using the equation provided by Vítek et al. (2011): $y = 1.27 * x$, where y represents live weight at slaughter (kg) and x is the hot carcass weight (kg). Estimation of average lifetime daily weight gain was done by subtracting the usual weight of newborn piglet (1.1 kg) from the final weight at the slaughter and then result was divided with average slaughter age (180 days) (Jaeger et al., 2009).

Following evisceration, each carcass included in the experiment was carefully labeled with a carcass ticket to further ensure traceability. The carcasses were then split longitudinally into two equal halves, washed, and weighed 45 minutes postmortem to determine the hot carcass weight. Afterward, the halves were placed in a cold chamber at 4ºC, where they remained for 24 hours. Once the cooling period ended, the carcasses were removed and weighed again to determine the cold carcass weight. The carcass lean meat content (%) was calculated using Two points method approved for Serbia (European Commission, 2008), by measuring loin muscle (*musculus longissimus lumborum*) thickness (shortest distance between the cranial end of the *musculus gluteus medius* and the dorsal edge of the vertebral canal) and carcass backfat thickness (minimum fat thickness with skin over the *musculus gluteus medius*) in millimeters along the midline of the split carcass using a stainless-steel ruler. Lean meat percentage was then estimated using the following formula as described by Čobanović et al. (2021): y = 65.93356 – 0.17759 * x1 + 0.00579 * x1 – 52.54737 * x1/x2, where y represents the estimated lean meat content (kg), x1 is the backfat thickness (mm), and x2 is the loin muscle thickness (mm). Carcasses were then classified into six classes based on lean meat content, according to the EUROP standard (European Commission, 2008), as follows: "E" (55-60%), "U" (50-55%), "R" (45-50%), "O" (40-45%), and "P" (<40%).

Pork quality measurements were done 45 minutes, 24 hours and 72 hours postmortem on *musculus longissimus lumborum*, at the level of $10^{th}$ and $11^{th}$ ribs. The initial and final meat pH ($pH_{45min}$ and $pH_{24h}$) and temperature ($T_{45min}$ and $T_{24h}$) measurements were carried out 45 minutes and 24 hours postmortem using a portable pH meter (Testo 205, Testo AG, Lenzkirch, Germany). Subjective pork colour determination was done using National Pork Producer Council (2000) colour standard by three experienced sensorists. Objective pork colour determination was performed using a portable colorimeter (NR110, 3NH Technology CO., Ltd., Shenzhen, China) at six randomly selected points on the surface of the loin muscle and in the core after slicing. The final results were obtained by averaging the $L^*$ (lightness), $a^*$ (redness), and $b^*$ (yellowness) values from six measurements. Water holding capacity was determined via three methods (drip loss, thawing loss and cooking loss) as described by Klauke et al. (2013). Pork quality classes were determined using pH measured 24 hours postmortem, drip loss results and lightness ($L^*$ value) according to Koćwin-Podsiadła et al. (2006): pale, soft, and exudative – PSE meat; red, soft, and exudative – RSE meat; red, firm, and nonexudative – RFN meat; pale, firm, and nonexudative – PFN meat; and dark, firm, and dry – DFD meat.

The statistical analysis was performed using SPSS software, version 23.00 for Windows (SPSS, 2015). Based on the presence of fibrinous pericarditis, the pigs were divided into two groups: (i) pigs without any sign of fibrinous pericarditis (n=107) and (ii) pigs with signs of fibrinous pericarditis (n=37). Student t-test was applied to assess the impact of fibrinous pericarditis on blood welfare indicators, performance indices, and carcass and meat quality parameters. The data were summarised using descriptive statistics, specifically the mean and standard deviation. Fisher's exact test was employed to analyse the distribution of carcass and pork quality classes in relation to presence of fibrinous pericarditis. A P-value of less than 0.05 was considered statistically significant.

## Results and Discussion

From a total of 144 examined pig hearts, the presence of fibrinous pericarditis was recorded in 25.69% cases. The frequency of fibrinous pericarditis recorded in the present study was higher than previously established prevalence in Republic of Serbia (10.96%, Čobanović et al., 2022). In different parts of the world, the prevalence of fibrinous pericarditis in slaughtered pigs ranges from: 9% (Bonde et al., 2010) to 13% (Buttenschøn, 1991) in Denmark, 5.66% in Italy (Bottacini et al., 2021), 3.3% (average value) in Portugal, Italy, Finland, Brazil and Spain (Dalmau et al., 2016) and 2.3% in Germany (Mathur et al., 2018). Furthermore, the present investigation revealed that the percentage of fibrinous pericarditis surpassed the 20% alarm threshold established by the Welfare Quality® protocol (2009) for this health indicator. Pathological lesions observed at the slaughterline, such as lung lesions, liver milk spots and fibrinous pericarditis, are commonly associated with substandard production systems (Harley et al., 2012) and suggest significant health and welfare concerns at farm level (Welfare Quality® protocol, 2009).

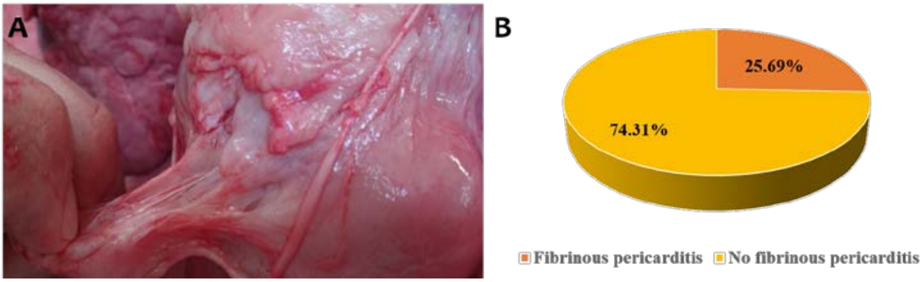


**Figure 1. Occurrence of fibrinous pericarditis in slaughtered pigs at the slaughterline**

A high occurrence of fibrinous pericarditis in the present study can be ascribed to the fact that pigs raised on family farms with fenced outdoor access are often closed inside the pens during colder months, usually leading to overcrowding, accumulation of dust, hazardous infective agents and noxious gases (ammonia and carbon dioxide) (Done, 1991; Čobanović et al., 2019a, 2019b). High population density can affect pig health by increasing the likelihood of aerosol transmission among pen mates and providing more opportunities for direct nose-to-nose contact with infected individuals (Alawneh et al., 2018; Čobanović et al., 2019a). Furthermore, when pigs are housed in overcrowded, dirty, and isolated barns with improper or irregular manure and sewage disposal, the spread of parasites, viruses, and bacteria is facilitated, contributing to the development of diseases (Čobanović et al., 2019a). Moreover, family farms using continuous flow management systems face a higher risk of infectious diseases compared to farrow-to-finish farms, as they depend on external sources for weaner restocking, which increases the likelihood of introducing infectious agents from outside the herd (e.g., through carrier pigs) (Stärk, 2000; Done, 1991; Čobanović et al., 2019a).

The effects of fibrinous pericarditis on blood metabolites of slaughtered pigs are shown in Table 1. The presence of fibrinous pericarditis in slaughtered pigs was significantly associated with decreased (P<0.0001) blood lactate and glucose levels. The lower blood glucose and lactate concentrations observed in pigs with fibrinous pericarditis indicate chronic malnutrition, insufficient protein intake, energy deficiency, and dehydration during the period of illness (Šoltésová et al., 2015; Tothova et al., 2016; Čobanović et al., 2019b, 2021). Also, pigs with fibrinous pericarditis, had blood glucose levels below the reference range for the species (Table 1), further suggesting that biochemical changes detected in the present study may be linked to the chronic stages of disease.

**Table 1. Mean values (±standard deviation) of blood metabolites in relation to presence of fibrinous pericarditis in slaughtered pigs (n=144)**

| Item | No fibrinous pericarditis | Fibrinous pericarditis | Reference values (Čobanović et al., 2021, 2024) | P-value |
|---|---|---|---|---|
| Number of pigs | 107 | 37 | | |
| *Blood metabolites* | | | | |
| Lactate (mmol/L) | 3.89 ± 0.88 | 1.76 ± 0.53 | 0.5–5.5 mmol/L | <0.0001 |
| Glucose (mmol/L) | 6.85 ± 0.20 | 3.22 ± 0.32 | 4.7–8.3 mmol/L | <0.0001 |

The effects of fibrinous pericarditis on growth performance and carcass quality characteristics of slaughtered pigs are reported in Table 2. The presence of fibrinous pericarditis in slaughtered pigs was significantly associated with reduced average lifetime daily weight gain (P=0.0042), live weight (P=0.0045), hot carcass weight (P=0.0045), cold carcass weight (P=0.0045) and lean meat content (P<0.0001). Consequently, pigs showing fibrinous pericarditis produced the lower (P<0.0001) percentage of „E“ class carcasses, but the higher (P=0.0079) percentage of „R“ class carcasses (Table 2).

Chronic infections that trigger a systemic response and affect the host over an extended period, significantly impact growth rate, feed digestibility, and daily weight gain during the fattening period (Almeida et al., 2020; Ferraz et al., 2020). These effects occur because infections, even in subclinical forms, reduce food intake, hinder nutrient digestion, absorption, and assimilation in the gastrointestinal tract, increase metabolic demands, and promote muscle catabolism while impairing bone and fat tissue synthesis, as well as nutrient transport to target tissues (Čobanović et al., 2019b, 2021).

**Table 2. Mean values (±standard deviation) of performance indices and carcass quality characteristics in relation to presence of fibrinous pericarditis in slaughtered pigs (n=144)**

| Item | No fibrinous pericarditis | Fibrinous pericarditis | P-value |
|---|---|---|---|
| Number of pigs | 107 | 37 | |
| *Performance indices* | | | |
| ADLWG (g) | 636.60 ± 7.88 | 590.50 ± 14.36 | 0.0042 |
| Live weight at slaughter (kg) | 115.60 ± 1.42 | 107.40 ± 2.58 | 0.0045 |
| *Carcass quality traits* | | | |
| Hot carcass weight (kg) | 91.05 ± 1.12 | 84.57 ± 2.04 | 0.0045 |
| Cold carcass weight (kg) | 89.68 ± 1.10 | 83.30 ± 2.00 | 0.0045 |
| Backfat thickness (mm) | 12.64 ± 0.50 | 17.49 ± 1.08 | <0.0001 |
| Loin muscle thickness (mm) | 66.92 ± 0.63 | 67.97 ± 1.46 | 0.4398 |
| Lean meat content (%) | 53.81 ± 0.48 | 49.46 ± 0.97 | <0.0001 |
| *Carcass quality classes (%)* | | | |
| E class | 59.81 | 18.92 | <0.0001 |
| U class | 18.69 | 32.43 | 0.1079 |
| R class | 14.02 | 35.14 | 0.0079 |
| O class | 6.54 | 8.11 | 0.7171 |
| P class | 0.94 | 5.40 | 0.1622 |

This leads to a reprioritisation and redistribution of nutrients from productive processes like muscle deposition, fat synthesis and bone formation to those with higher nutrient demands, such as plasmatic protein synthesis and the repair of damaged tissues (Čobanović et al., 2019b, 2021). As a result, live and carcass weights, and carcass meatiness decrease (Čobanović et al., 2019b, 2021). Therefore, it can be argued that metabolic disorders associated with fibrinous pericarditis significantly impair pig performance, leading to uneven growth, more days required to reach slaughter weight, reduced final body weight, and a marked decline in carcass quality, ultimately lowering the carcass market value and resulting in considerable financial losses for producers and the pig industry overall (Brewster et al., 2017; Čobanović et al., 2019a, 2021).

The effects of fibrinous pericarditis on pork quality traits of slaughtered pigs are displayed in Table 3. The pork quality analysis showed that pigs without fibrinous pericarditis produced the better meat quality, with the higher (P=0.0465) percentage of RFN meat. This suggests that when animals are free from diseases, dietary energy can be directed toward productive processes, resulting in normal postmortem metabolic functions in skeletal muscles and ensuring the production of high-quality pork (Čobanović et al., 2019b, 2021). Moreover, before-mentioned group of pigs had final meat pH (5.4–5.85 one day postmortem; Honikel, 1999), drip loss (2-5%; Koćwin-Podsiadła et al., 2006) and $L^*$ (lightness) value (42–50; Koćwin-Podsiadła et al., 2006) within the normal range for pork meat, further suggesting normal postmortem acidification and processes in individuals free from heart lesions.

**Table 3. Mean values (±standard deviation) of pork quality traits in relation to presence of fibrinous pericarditis in slaughtered pigs (n=144)**

| Item | No fibrinous pericarditis | Fibrinous pericarditis | P-value |
|---|---|---|---|
| Number of pigs | 107 | 37 | |
| *Physicochemical traits* | | | |
| $pH_{45min}$ | 6.04 ± 0.04 | 6.17 ± 0.07 | 0.1381 |
| $T_{45min}$ | 38.00 ± 0.14 | 38.17 ± 0.19 | 0.5203 |
| $pH_{24h}$ | 5.76 ± 0.02 | 6.00 ± 0.02 | <0.0001 |
| $T_{24h}$ | 4.29 ± 0.24 | 4.70 ± 0.44 | 0.3590 |
| *Water-holding capacity traits* | | | |
| Drip loss (%) | 4.65 ± 0.07 | 2.64 ± 0.66 | <0.0001 |
| Thawing loss (%) | 6.08 ± 0.28 | 6.48 ± 0.33 | 0.4459 |
| Cooking loss (%) | 22.26 ± 0.62 | 23.65 ± 0.66 | 0.2229 |
| *Colour traits* | | | |
| *L** (lightness) value | 48.51 ± 0.30 | 45.70 ± 0.56 | <0.0001 |
| *a** (redness) value | 11.68 ±0.65 | 14.92 ± 1.09 | 0.0123 |
| *b** (yellowness) value | 6.29 ± 0.09 | 5.28 ± 0.25 | <0.0001 |
| Sensory colour | 2.89 ± 0.10 | 3.11 ± 0.10 | 0.2216 |
| *Pork quality classes (%)* | | | |
| Pale, soft and exudative meat | 10.28 | 0.00 | 0.0655 |
| Red, soft and nonexudative meat | 5.61 | 5.41 | >0.9999 |
| Red, firm and nonexudative meat | 70.09 | 51.35 | 0.0465 |
| Pale, firm and nonexudative meat | 10.28 | 16.22 | 0.3780 |
| Dark, firm and dry meat | 3.74 | 27.02 | 0.0002 |

In contrast, the presence of fibrinous pericarditis in slaughtered pigs was significantly associated with abnormally elevated final ($pH_{24h}$) meat pH (P<0.0001), high water-holding capacity (lower drip loss; P<0.0001) and unfavourable dark colour (higher lightness and yellowness; P<0.0001) (Table 3). As a consequence, pigs showing fibrinous pericarditis produced the highest percentage of DFD meat (P=0.0002) (Table 3). Furthermore, aforementioned group of pigs had final meat pH higher than normal range for pork meat (5.4–5.85 one day postmortem; Honikel, 1999), while drip loss and *L** (lightness) value were close to the lower limit of normal range reported for this meat type (Koćwin-Podsiadła et al., 2006).

The findings of this study can be explained by the increased energy demands of severely diseased animals, leading to a depletion of glycogen and adenosine triphosphate (ATP) reserves in skeletal muscles postmortem

(Dailidavičienė et al., 2008; Nenadović et al., 2021; Čobanović et al., 2019b, 2021). This can further explain the lower blood lactate and glucose concentrations observed in pigs with fibrinous pericarditis, resulting in reduced lactic acid in the skeletal muscles and higher meat pH, making it more likely to develop DFD meat (Dailidavičienė et al., 2008; Čobanović et al. 2019b, 2021). In addition to poor processing characteristics, meat from pigs with severe pathological lesions, such as pneumonia, pleurisy, liver milk spots and fibrinous pericarditis, has a shorter shelf life, accelerated autolytic processes, a greater capacity to support bacterial growth, and the highest concentration of total biogenic amines, rendering it unsuitable for storage (Minkus et al., 2004; Dailidavičienė et al., 2009a, 2009b; Čobanović et al., 2017, 2019b, 2021). Based on the results of this study, it can be argued that meat from pigs with fibrinous pericarditis is of lower quality and may not meet the rigorous standards required for placement in the market or production of premium products (Karabasil et al., 2017; Čobanović et al., 2019b, 2021).

## Conclusions

The findings of this study revealed a high occurrence of fibrinous pericarditis in slaughtered pigs, signalling a significantly compromised health and welfare on the farm of origin. The presence of fibrinous pericarditis in slaughtered pigs resulted in significant changes in blood metabolite levels, indicating chronic stages of disease. Furthermore, the presence of fibrinous pericarditis in slaughtered pigs significantly reduced growth performance and deteriorated carcass quality characteristics, in terms of lower daily weight gain, live weight, carcass weight and meatiness. Additionally, the presence of fibrinous pericarditis in slaughtered pigs caused a significant deterioration in pork quality traits (abnormally elevated meat pH, increased water-holding capacity, unfavourable dark colour and high percentage of DFD pork). It can, therefore, be concluded that assessing fibrinous pericarditis at the slaughter line has the potential to serve not only as an indirect indicator of pig health and welfare on the farm of origin but also of growth performance, carcass and pork quality. A good feedback system that reports findings of fibrinous pericarditis in pigs from slaughter facilities back to farmers could help in developing, adapting and implementing preventive measures, which in turn would enhance pig well-being standards and improve carcass and pork quality, benefiting both the financial and consumer satisfaction.

# Fibrinozni perikarditis kod svinja na liniji klanja: uticaj na dobrobit, indekse performansi i kvalitet trupova i mesa

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## Rezime

Cilj ove studije bio je da se ispita uticaj prisustva fibrinoznog perikarditisa na hematološke pokazatelje dobrobiti, indekse performansi i kvalitet trupova i mesa zaklanih svinja. Od ukupno 144 ispitanih svinja, prisustvo fibrinoznog perikarditisa je zabeleženo u 25,69% slučajeva. Zaklane svinje sa fibrinoznim perikarditisom imale su manju (P<0,0001) koncentraciju laktata i glukoze u krvi na iskrvarenju. Prisustvo fibrinoznog perikarditisa kod zaklanih svinja dovelo je do smanjenja dnevnog prirasta (P=0,0042), telesne mase (P=0,0045), mase toplog trupa (P=0,0045), mase hladnog trupa (P=0,0045) i mesnatosti (P<0,0001). Posledično, svinje sa fibrinoznim perikarditisom imale su manji (P<0,0001) procenat „E“ klase kvaliteta trupova, a veći procenat (P=0,0079) „R“ klase kvaliteta trupova. Meso dobijeno od svinja bez fibrinozng perikarditisa imalo je bolji kvalitet i veću (P=0,0465) učestalost crvenog, čvrstog i nevodnjikavog mesa. Nasuport tome, meso dobijeno od svinja sa fibrinoznim perikarditisom imalo je abnormalno visoku pH vrednost (P<0,0001), povećanu sposobnost vezivanja vode (manji kalo ceđenja; P<0,0001) i tamniju boju mesa (veću $L*$ i $b*$ vrednost; P<0,0001). Kao posledica, kod pomenute grupe zaklanih svinja utvrđen je veći procenat tamnog, čvrstog i suvog mesa (P=0,0002). Na osnovu rezultata ovog istraživanja, može se zaključiti da ispitivanje prisustva fibrinoznog perikarditisa na liniji klanja svinja može da bude značajan pokazatelj ne samo dobrobiti i zdravstveng stanja svinja na farmi, već i indeksa performansi i kvaliteta trupa i mesa svinja.

**Ključne reči:** metaboliti krvi, lezije na srcu, zdravlje svinja, kvalitet mesa svinja

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**Conflict of interest**
The authors declare no conflict of interest.

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