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The pH and Hedonic of Chicken Steak Cooked with Seasoning Contains Cashew Apple Extract

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Abstract

Cashew apple utilization is less than the cashew itself, due to the cheaper price and therefore often ends up as waste. Extract cashew apple can be applied in chicken steak for marinating as an innovation in food seasoning sauce. This study aims to determine the panelist's preference for chicken steak marinating with commercial seasoning sauce and marinating with a seasoning sauce that contains cashew apple extract (CAE) on different concentrations of seasoning solution. There were 5 levels of treatment, control treatment (T0) using 40% (v/v) concentration of commercial seasoning, T1, T2, T3, and T4 consecutively using seasoning concentrations 20%, 40%, 60%, and 80% (v/v). The pH of the samples was evaluated with a pH meter, meanwhile, the hedonic test was used to evaluate the preference of the samples. The result showed that the levels of seasoning concentration affected the pH and panelist preference with hedonic assessment over 5 parameters (tenderness, juiciness, taste, aroma, and overall). The increasing seasoning concentration gives more acidic properties indicated by 4,58 pH of. The hedonic assessment showed 60% concentration of seasoning is preferred.

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Introduction

Cashew (*Anacardium occidentale*) is a tropical fruit from Brazil. Cashew consists of two parts of fruit which are nut (cashew) representing 10% of cashew and pseudo-fruit (cashew apple) representing 90% of the fruit. Part of cashew that is widely exploited is a nut called cashew nut and cashew apple become a waste (Listyati and Sudjarmoko, 2011). Cashew apple has more potential, one of them as a substitution for steak seasoning. Cashew apples contain vitamin c, carotenoids, minerals, and phenol as antioxidants (Meye, 2010).

Marination is the meat treatment that soaking meat in a seasoning solution called seasoning (Nurwantoro et al., 2012). Marination has a role in increasing taste, texture, and juiciness (Wongmaneepratip and Vangnai, 2017). The main purpose of this research is to determine the panelist's preference for chicken steak marinating with commercial Seasoning and marinating with seasoning containing cashew apple extract on different concentrations of seasoning.

Materials and Methods

Cashew apple was extracted by percolation method refer to (Susanti et al., 2018). The cashew apple was sliced and dried. Dried slices of cashew apple were milled and sifted to become a powder. Cashew apple powder was extracted using 70% ethanol with ratio 250 g of cashew apple for 1 liter ethanol for 48 hours and shake every 2 hours. After 48 hours cashew apple extract was filtered and then was evaporated using rotary evaporator.

Seasoning was made by following formulation in Table 1. Seasoning was made by mixing all the ingredients using blender without any water addition. Marination procedure was referred to Yusop et al., (2010). Chicken breast was sliced and weighted for 100 gram/treatment and soaked with the seasoning in container for 4

hours and keep it in refrigerator with 4ºC temperature. Chicken steak cooking was in accordance with Oz and Yuzer, (2016) and Chen and Smith, (2015). Marinated chicken breast was cooked using stainless pan fry until well-cooked by controlling the inner chicken temperature reach 70ºC for 6 minutes.

Table 1. Formulation of Seasoning

Ingredients	Amount
Sunflower oil (ml)	45
Onion (g)	100
Garlic (g)	20
Paprika Merah (g)	125
Tomato Sauce (ml)	95
Cashew Apple Extract (ml)	5
Brown Sugar (g)	100
worcester sauce (ml)	90
Black Paper (g)	5
Salt (g)	5
Powdered Chicken Stock (g)	10

Hedonic analysis was done with 25 semi-trained panelists referring to Miranti et al., (2017). Hedonic analysis attributes were taste, aroma, juiciness, tenderness and overall. The panelist will be asked to taste each steak with the treatment T0, T1, T2, T3 and T4 which had been given randomly 3 number codes. The assessment based on their preference then writes on the form which already shared before. The scale that is used into panelist assessment consist 4 scale which are most like (4), like (3), quite like (2) and unlike (1). After that hedonic data analysis was using descriptive statistics analysis for mean and standard deviation on SPSS 26.0 for windows. The level significance was set at $\alpha = 0.05$

The analysis of pH was using pH meter, in accordance with Azizah et al. (2012). The samples were dissolved with aquadest and poured into beaker glass, then turn on pH meter and calibrated with neutral buffer pH and acid, after that dip the probe into beaker glass that containing sample, pH values come up on the screen. The pH values are display in a descriptive narrative.

Results and Discussion

The difference of seasoning concentration reduced seasoning pH. Control treatment (T0) was using commercial seasoning with 40% concentration has lower pH than T2 treatment which is using seasoning contains CAE with the same concentration of seasoning. The lower pH in T0 treatment was assumed there is acidity regulator food additive in the composition, acidity regulator to intend lower pH of steak so it become more acidic (Nurhidayati et al., 2019). Viscosity of Seasoning also can decrease the steak pH showed in Figure 1. T4 treatment pH which using 80% seasoning concentration has 4,85 pH, more viscous seasoning solution causes more acidic properties of steak (Suryaningrum et al., 2013). According to Alvianti and Fitri (2018) The lower pH was also influenced by the addition of CAE which has low pH polyphenol called tannin, the most polyphenols have acidic properties.

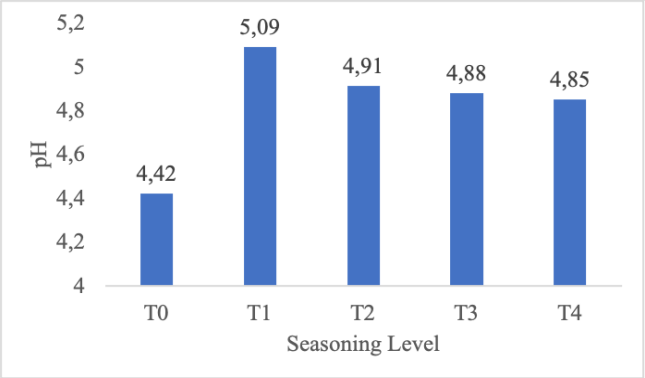

Figure 1. Steak pH Graphic pH of chicken steak cooked with seasoning contains cashew apple extract. T0 was commercial seasoning while T1-4 were 20, 40, 60, and 80% of seasoning levels for cooking steak respectively.

Preference level assessment was done by 25 semi trained panelists with hedonic assessment. The scale that is used in panelist assessment consists of 4 scales. Based on hedonic result, marination with different concentration of seasoning has significantly affect ($p<0.05$) to chicken steak. The result of the overall hedonic test showed that tenderness, juiciness, and taste of T3 more preferable. The marination can improve preference of chicken steak taste. Showed on Table 2. T0 treatment has the lowest hedonic score. This is caused by acidity regulator in commercial seasoning, so it has more sour taste in T0 than T3 that marinating meat with high acid concentration has low acceptance because of the taste is sour (Aktas and Kaya, 2001)

Aside from increasing the taste of chicken steak, marination also can increase juiciness and tenderness in meat. During the marinating process, the Seasoning will sink into the meat so tenderness and juiceness of chicken steak increased (Latif, 2010). According to Augustyńska-Prejsnar et al. (2019) marinating can increase water holding capacity, high water holding capacity give effect more juiciness of chicken steak. Seasoning can give a better taste, make meat muscle fiber softer and increase consumer preference.

Table 2. Hedonic Assessment Result

Parameter	Treatment				
	T0	T1	T2	T3	T4
Tenderness	2.96 ± 0.73[a]	3.16 ± 0.55[a]	3.08 ± 0.76[ab]	3.48 ± 0.58[b]	3.28 ± 0.67[ab]
Juiciness	3.00 ± 0.70[ab]	3.08 ± 0.81[ab]	2.80 ± 0.70[a]	3.28 ± 0.73[b]	2.92 ± 0.76[ab]
Taste	2.60 ± 0.58[a]	2.60 ± 0.76[ab]	2.80 ± 0.76[abc]	3.08 ± 0.70[c]	3.00 ± 0.81[c]
Aroma	2.76 ± 0.66	2.68 ± 0.69	2.92 ± 0.70	3.04 ± 0.67	3.08 ± 0.91
Overall	2.80 ± 0.50[a]	2.92 ± 0.70[ab]	2.96 ± 0.73[ab]	3.16 ± 0.68[b]	3.16 ± 0.80[b]

The data showed as mean ± standard deviation. Different superscript at the same line were significantly different ($p<0,05$). T0 was commercial seasoning while T1-4 were 20, 40, 60, and 80% of seasoning levels for cooking steak respectively.

Consumer's taste acceptance influence with seasoning concentration. The higher concentration of marination seasoning will produce more concentrated season and it is preferred by consumer. The increase of water holding capacity while marinating will make the season more sink into the meat. Concentration of seasoning will influence the taste of food, more viscous seasoning will give more tasty food (Hermanaputri et al*.,* 2017). High concentration of seasoning will make it more viscous because it will increase the partikel amount in seasoning (Due et al*.,* 2019). The chasew apple extract addition in seasoning marination will give bitter after taste so in this researche only use 5% chasew apple extract. High tanin content in chasew apple extract that makes the bitter taste appear (Anwar, 2013).

Conclusion

Based on the research result obtained, marination can be used to increase panelist's preference include chicken steak juiciness and tenderness. Seasoning that contain CAE is more preferable than commercial Seasoning. Higher concetrantion of Seasoning decreased pH value. Seasoning treatment that most preferred is T3 that using 60% concentration of Seasoning.

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