

Quality Characteristics of Gouda Cheese in Different Salt Content

Ja yeon Yoo*, Won Seo Park, Subin Jo, Jae-Young Hwang, Seok-Geun Jeong
National Institute of Animal Science, RDA, Wanju-gun 55365, Korea

INTRODUCTIONS

- The world consumer has been increasingly interested in health, so some of them prefer the low sodium foods more than in the past.
- In terms of cheese in Korea, people commonly have the awareness that cured cheese taste extremely salty, so some people is reluctant to eat that type of cheese.
- So, it is necessary to develop cured cheeses that have low salt content without hindrance sensory preference.
- This study was conducted to investigate the influence of salinity on the quality characteristics of gouda cheese and conclude the possibility of making reduced sodium gouda cheese.

RESULTS



Fig 1. Manufactured gouda cheese treated in different salting time(4h, 6h, 8h, 10h)

	0.5h	1h	2h	4h	6h	8h	10h
Protein(%)	23.78	23.65	23.29	24.52	24.93	24.99	24.73
Fat(%)	32.57	32.52	32.21	28.81	29.23	29.56	29.19
Moisture(%)	39.27	39.48	39.83	42.86	41.74	41.37	41.87
Salt(%)	0.88	0.91	1.03	1.28	1.42	1.49	1.49

Table 1. General component of gouda cheese in different salt content

MATERIAL & METHODS

1. Manufacture of gouda cheese

- The manufacturing process of gouda cheese used in this study was same to normal method except salting time that modulated to 4, 6, 8, 10 hour and the cheeses was ripened during 5 months.
- starter : *mesophiles*(*Lactococcus lactis* ssp. *cremoris*, *Lactococcus lactis* ssp.)
- rennet : Standard plus 900(Chr. Hansen, Denmark), 23ml/100kg

Samples	T1	T2	T3	T4
salting time(hour)	4	6	8	10

2. Analysis of quality characteristics

- general component, texture, pH, sensory properties

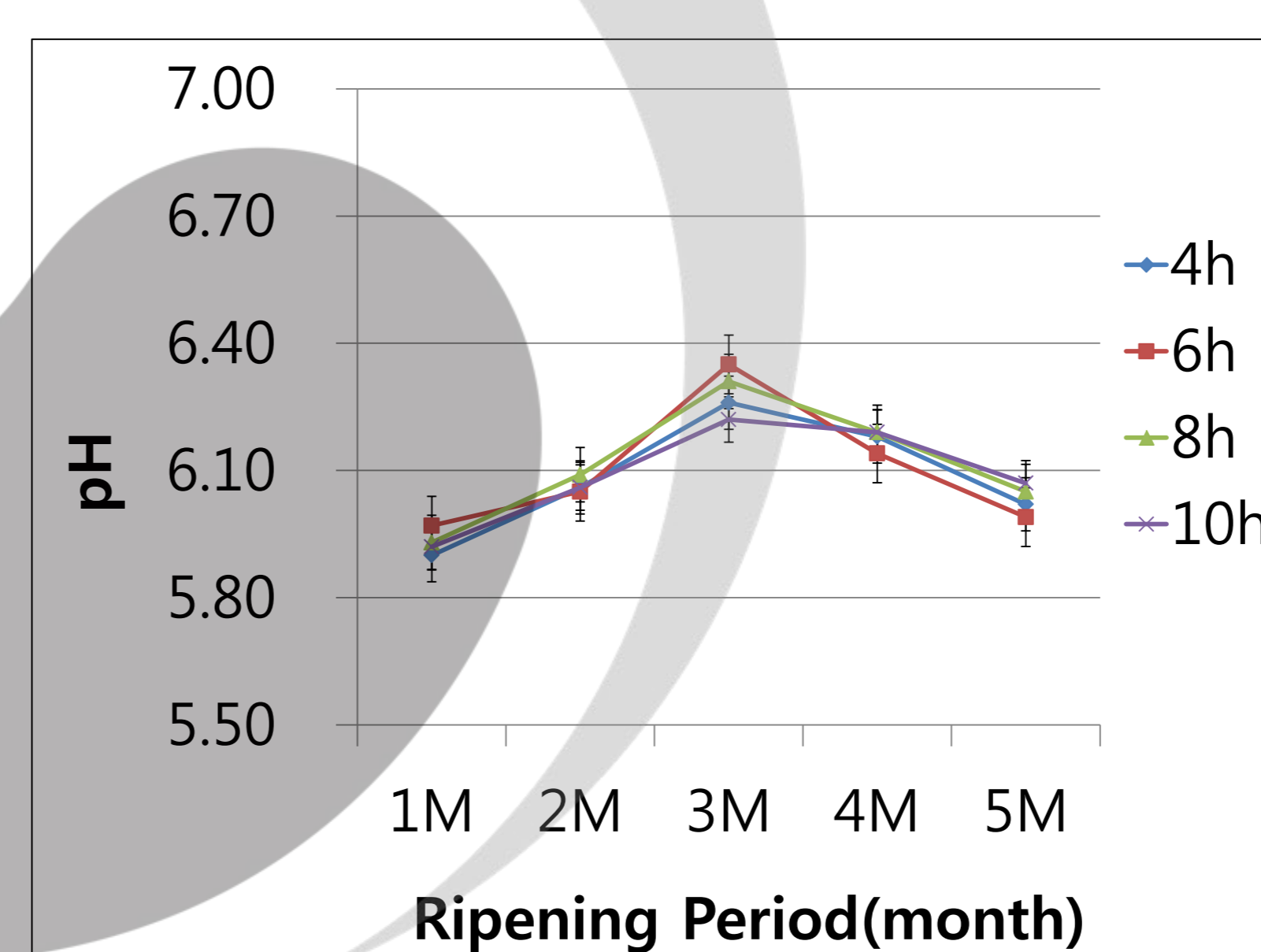


Fig 2. Changes in pH of gouda cheese in different salt content during ripening period

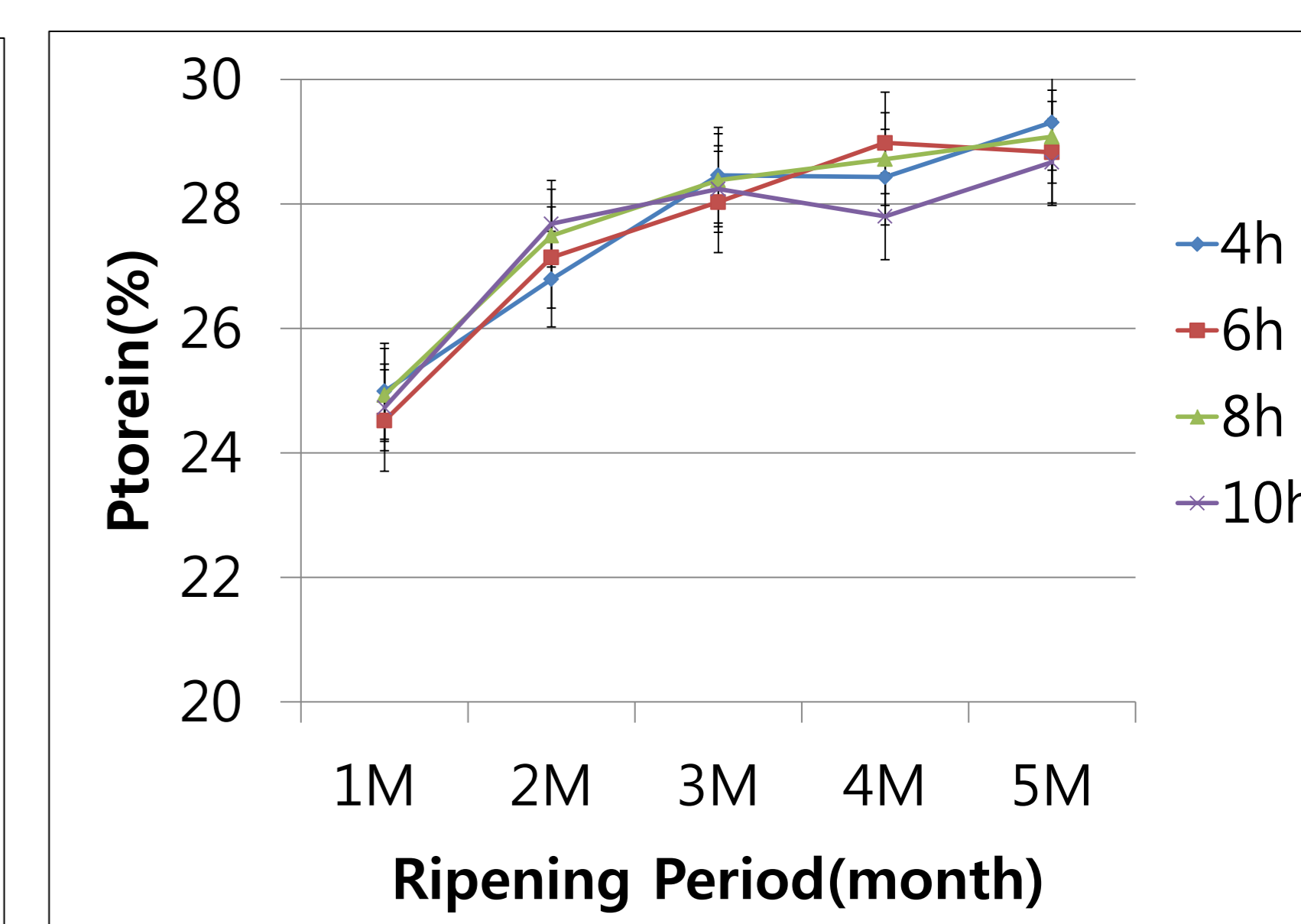


Fig 3. Changes in Protein content of gouda cheese in different salt content during ripening period

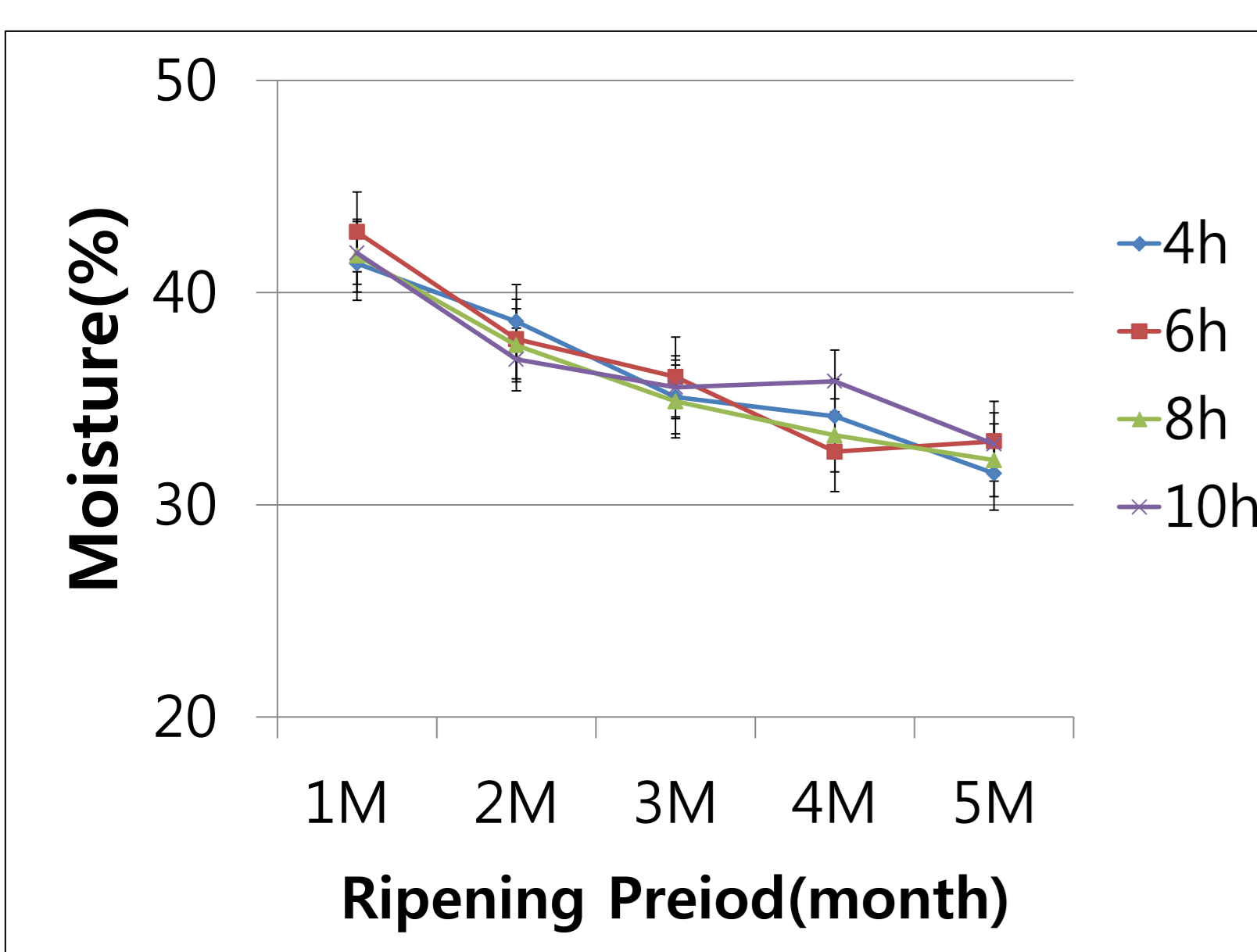


Fig 4. Changes in moisture content of gouda cheese in different salt content during ripening period

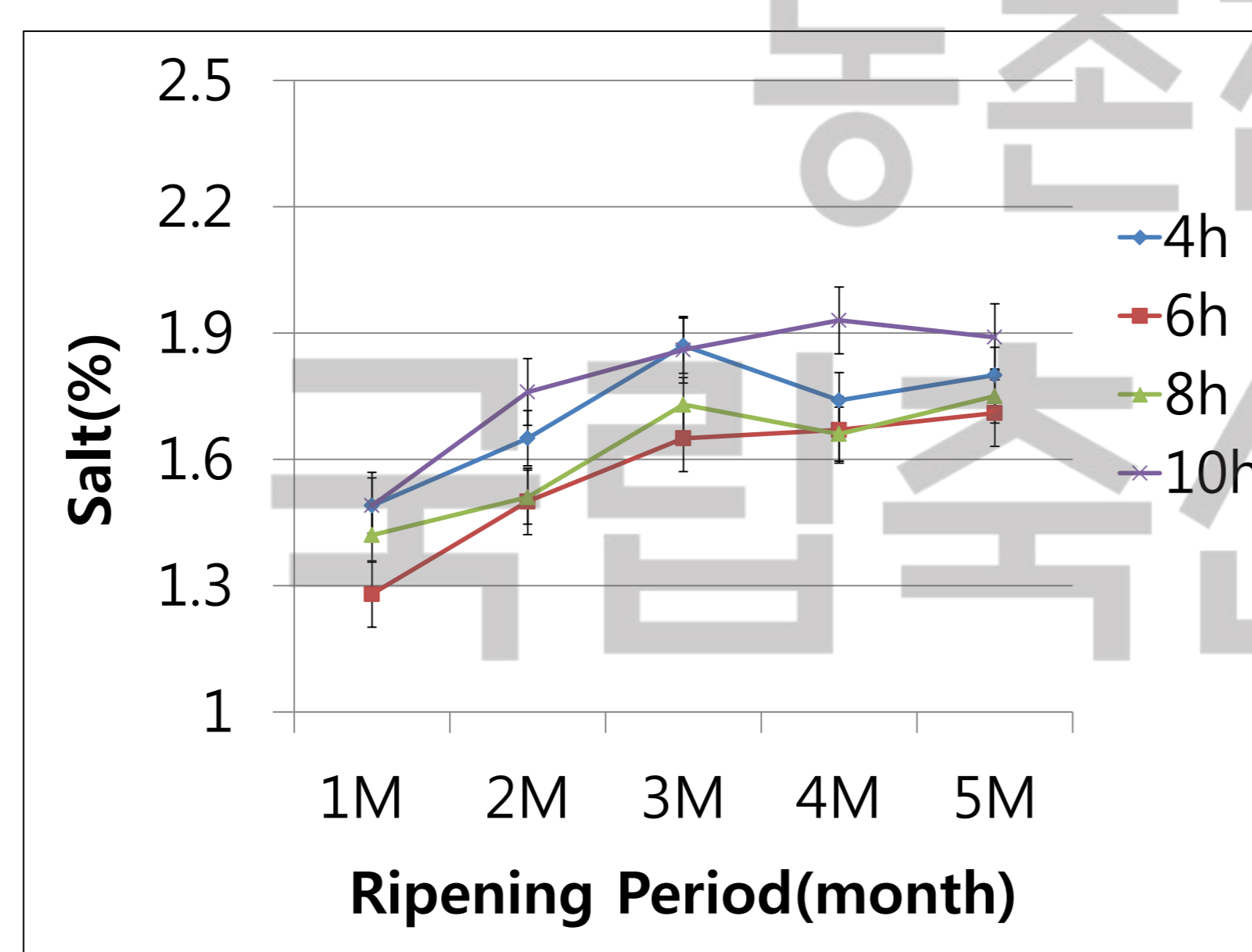


Fig 5. Changes in Salt content of gouda cheese in different salt content during ripening period

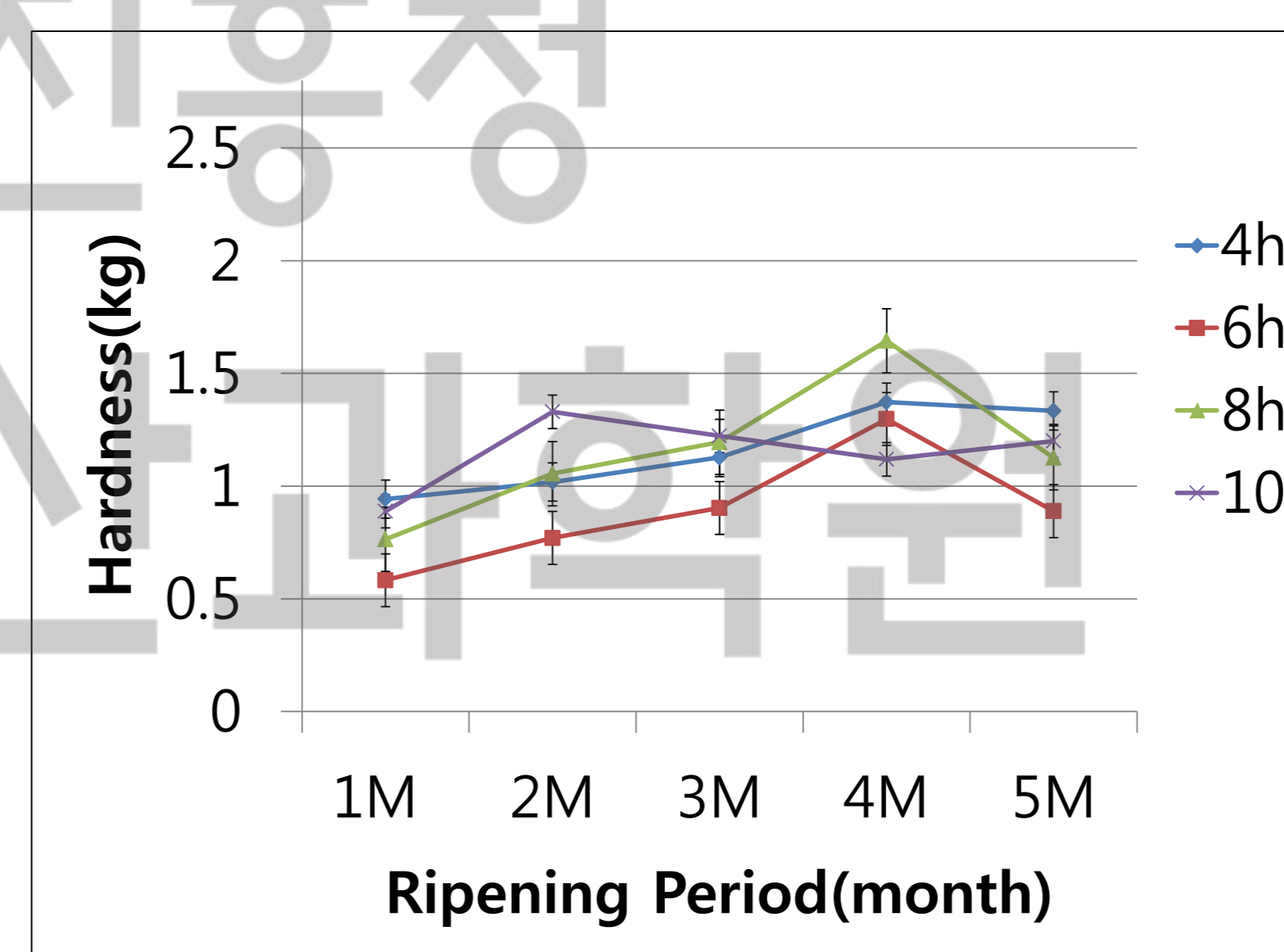


Fig 6. Changes in Hardness of gouda cheese in different salt content during ripening period

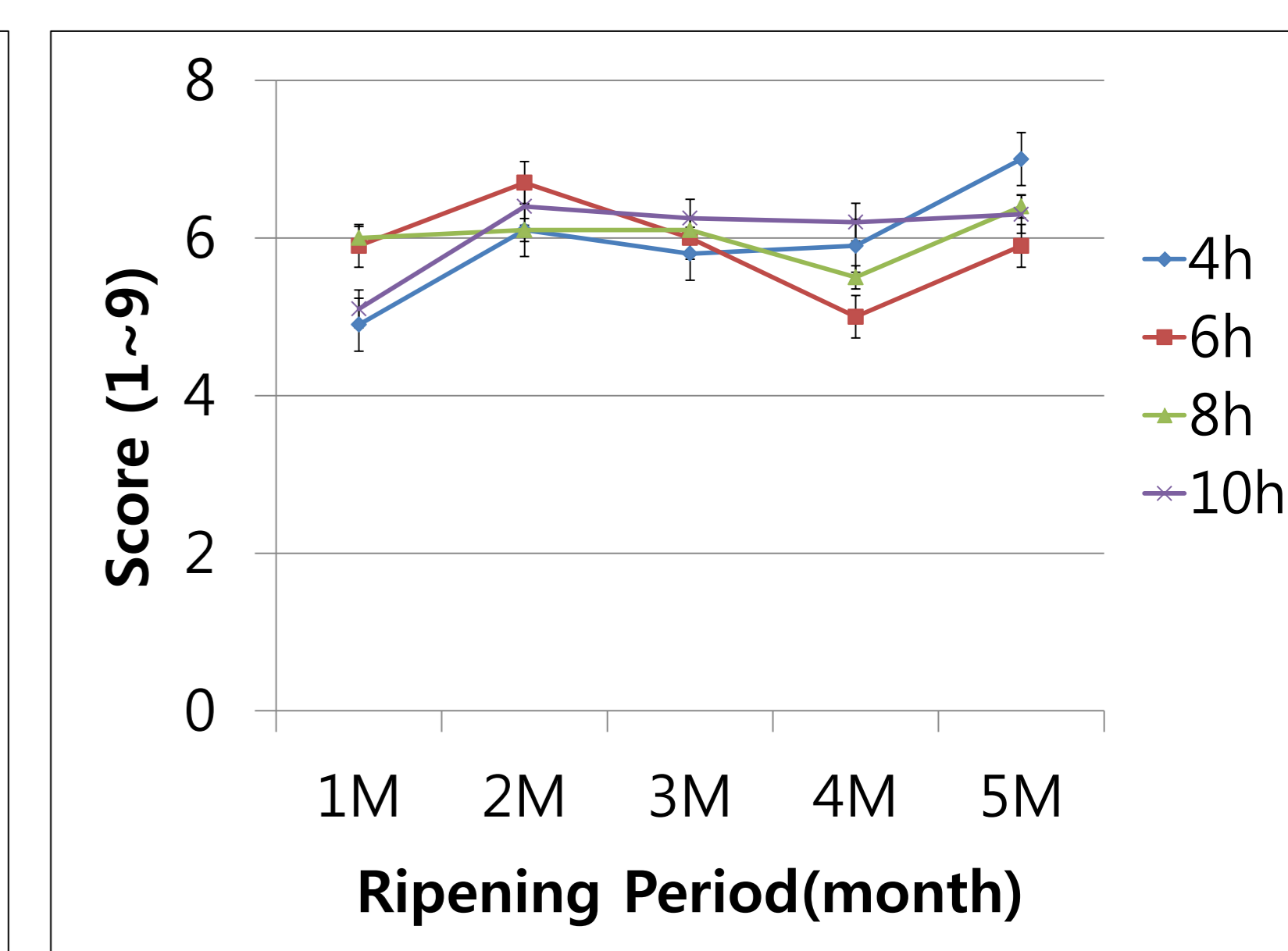


Fig 7. Changes in sensory preference of gouda cheese in different salt content during ripening period

CONCLUSIONS

- The salt content of the experimental gouda cheese increased as the salting time increased.
- The moisture content of all gouda cheese decreased and the protein and salt content increased during ripening period.
- In result of texture analysis, the hardness of cheese salted during 10 hour was the highest until 3 month, and as the salting time increased, the hardness tended to increase, too.
- The overall sensory score has different tendency around 3 month, and the cheese salted during 6 hour or 8 hour has high sensory preference until 3 month.
- As a result, the cheese salted 6 hours that shorter than general salting time, 8 hour, is best reduced salting level, but the difference of salting content of two cheeses was slight.
- For more accurate analysis, further research is necessary to improve this problem such as application of salt substitutes.

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