INTRODUCTION

Honey is a popular natural food that is consumed by people and used in an ingredient in many processed foods. The main constituents of honey are fructose and glucose. Other minor carbohydrates in honey include di- and trisaccharides. There are more than two dozen of di- and trisaccharides that have been identified in honey.\(^1\) Besides carbohydrates, other minor honey constituents are organic acids, proteins, enzymes, phenolics, vitamins and aroma compounds.

Honey has a relatively high value, and is prone to be adulterated with less expensive syrup or sweetener substitutes. The botanical and geographical origin of honey could also be fraudulently claimed to gain economic benefit. Codex has clear definition of blossom honey, and set the limits for its use in the market. The characteristics of saccharide profiles in honey could be used as an effective way to differentiate honeys from different origins or from different botanical sources. The ignorable, unknown saccharides could be measured in honey for further investigation. The fructose, glucose, and sucrose contents in honey samples were shown in Table 4. The fructose, glucose, and sucrose in honey and syrup samples were shown in Table 4. They include 5 monosaccharides, 14 disaccharides, and 6 trisaccharides. The names and their k’ (capacity factor) of these saccharides were shown in Table 1.

METHODS

1) Method optimization

The elution order of saccharides under this HILIC condition is shown in Table 1. The standards were first separated into the samples similarly to the classification of the chromatograms. The peak areas of the samples were used to calculate the concentration of the sugar. The results are average of three measurements. The content results are average of three measurements.

RESULTS AND DISCUSSION

The correlation between the HPLC data and the QDa detector was used to obtain the concentration of the sugars in the samples. The calibration equations for fructose, glucose, and sucrose are shown in Table 4. The fitted calibration equations were shown in the plots. The fructose, glucose, and sucrose in honey and syrup samples were shown in Table 4.

CONCLUSION

Well validated disaccharide profiles in honey samples were obtained on XBridge BEH Amide XP column. The characteristics of disaccharide profiles of honey from different origins are useful in differentiating honey from different floral or geographic origins. They are also used for authenticity assessment. Unknown saccharide peaks were discovered in honey samples. These peaks could be used to differentiate honey from different botanical sources.

REFERENCES

3. Waters Corporation, 2016
4. Waters Corporation, Waters application note 720005767en, Disaccharides in milk and infant formula using the ACQUITY Arc system

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