

Determination of Acesulfame, Benzoic Acid, Sorbic Acid and Sodium Saccharin in Food (GB 5009.28-2016), (GB 5009.140-2016)

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Experimental background

Antiseptics in foods are also known as anti-microbial agents. They are food additives that prevent spoilage caused by microorganisms and extend the shelf life of foods.

At present, the preservatives used in China are benzoic acid and benzoic acid.

There are 25 kinds of sodium, sorbic acid, potassium sorbate, and calcium propionate, which are widely used in the food industry as one of important food additives.

Currently detection of preservatives in food, can refer to the national standard GB 5009.28-2016.

This method involves three substances: benzoic acid, sorbic acid, and sodium saccharin.

The line was tested, and the national standard GB 5009.140-2016 method was applied to An sai The honey substance was tested.

This article uses HPLC Column SVEA C18 Gold 5 μ m 110 Å 4.6*250mm columns for the above four Quality analysis can get an excellent peak shape in a faster analysis time and with a relatively long life.

Experimental

Column: SVEA HPLC C18 Gold 5 μ m 110Å 4.6*250mm

Serial no: 17327204

Instrument: HPLC

Mobile phase: Methanol: 20mmol/L Ammonium

Flow rate: Acetate=20:80 (v:v) 1.0 mL/min

Column

temperature: 35 °C

Detector: UV 230 nm

Extractant: Ultrapure water

Injection

volume: 5 μ L

Analyte: Benzoic acid concentration 0.01 mg/mL

Sorbic acid concentration 0.01 mg/mL

Sodium saccharide concentration 0.01 mg/L

Chromatogram

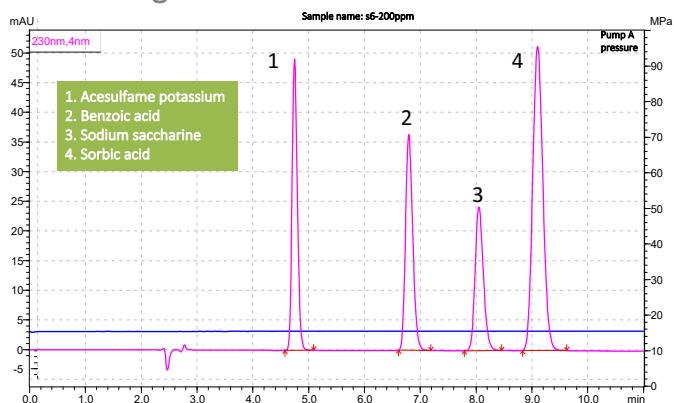


Figure 1: Separation of acesulfame, benzoic acid, sorbic acid, sodium saccharin

Quantative results

ID#	Compound name	Time	Area	Height	Concentration	Concentration unit
1	Acesulfam potassium	4.739	437591	39874	200.0	mg/kg
2	Benzoic acid	6.850	313993	32572	200.0	mg/kg
3	Sodium saccharine	8.085	239447	22417	200.0	mg/kg
4	Sorbic acid	9.109	597078	44844	200.0	mg/kg
Total			1588109	139708	0	

Conclusion

Using SVEA HPLC C18 Gold 5 μ m 110 Å 4.6*250mm in the analysis of the above three substances a better retention and excellent peak shapes can be obtained.

Column durability test

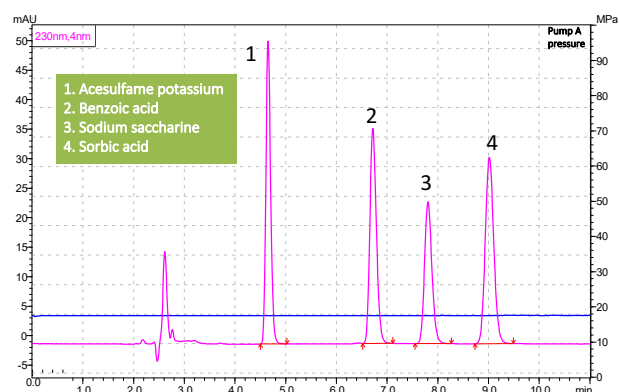


Figure 2: Separation of acesulfame potassium, benzoic acid, sodium saccharin and sorbic acid after one cycle using a new SVEA C18 Gold column.



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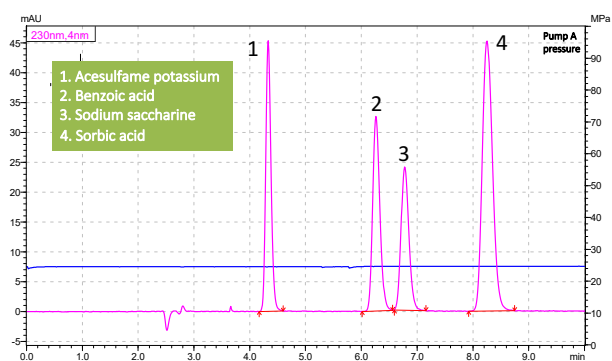


Figure 3: Separation of acesulfame potassium, benzoic acid, sodium saccharin and sorbic acid after 1000 cycles.

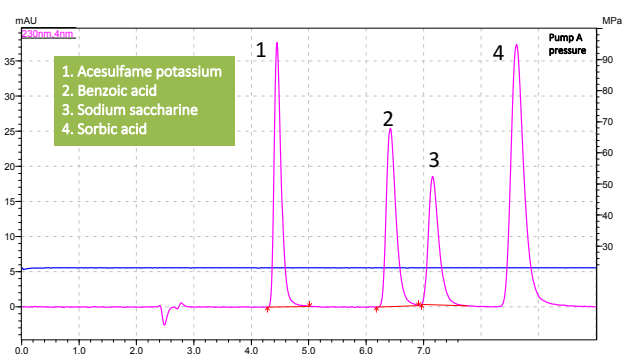


Figure 4: Separation of acesulfame potassium, benzoic acid, sodium saccharin and sorbic acid after 1700 cycles.

Conclusion

As seen in the figures above, the SVEA column has a long life time with maintained excellent resolution.