DEPARTMENT OF DRUG ADMINISTRATION
National Medicines Laboratory
ANALYTICAL METHOD VALIDATION COMMITTEE

Sucralfate Suspension

Analytical Profile No.: Sucral 076/077/AP 057

Sucralfate suspension contains not less than 90 % and not more than 110 % of the stated amount of Sucralfate.

1. Identification: In the Assay, the principle peak in the chromatogram obtained with the test solution corresponds to the peak in the chromatogram obtained with the reference solution.

Tests:

2. pH: 4.0 to 6.0

3. wt/ml: As per manufacturer's specification

4. Neutralizing Capacity:

Weigh accurately 2.6 g of suspension in 250 ml stoppered conical flask. Add about 100 ml of 0.1 M Hydrochloric acid, which is previously heated and maintained at 37 ^{0}C. The conical flask is then placed in a magnetic stirrer maintained at 37 ^{0}C, stirring continuously for 1 hour. The solution is then cooled to room temperature and 20 ml of the resulting solution is transferred to another conical flask. Add about 30 ml of water and titrate the resulting solution with 0.1 M Sodium hydroxide to a pH of 3.5.

Carry out blank titration using a mixture of 30 ml water and 20 ml of 0.1 M hydrochloric acid.

Calculate mEq of acid consumed per gram of Sucralfate suspension.

Limit: NLT 12 mEq

5. Microbial test:

5.1 E. coli

5.1.1 Sample Preparation (Solution A):

Prepare a sample by dissolving 1 ml of the product in 10 ml of nutrient broth.

5.1.2 Transfer 1 ml from solution A for inoculation to inoculate in 9 ml MacConkey broth and incubate at 30-35 ºC for 24 - 48 hours.

5.1.3 Subculture on a plate of MacConkey agar at 30-35 ºC for 18 - 72 hours.

5.1.4 Limit: Absence of E. coli per ml.

Interpretation

Growth of pink, non-mucoid colonies indicates the possible presence of E.coli. This should be confirmed by identification test. If there is no growth of such type of colonies or identification test is negative it indicates absence of E. coli and product pass the test.

5.2 Salmonella sp.

5.2.1 1 ml of the product is inoculated in 10 ml Nutrient Broth, mix and incubate at 30-35 ºC for 18-24 hours (Solution A).

5.2.2 Transfer 1 ml from solution A to 10 ml of Rappaport Vassiliadis Salmonella Enrichment Broth and incubate at 30-35 ºC for 24-48 hours.

5.2.3 Subculture the colonies obtained on plates of Xylose deoxycholate agar and incubate at 30-35 ºC for 24-48 hours.

5.2.4 Limit: Absence of Salmonella sp. per ml.

Interpretation

Well-developed red colonies with or without black centers indicates possibility of Salmonella. This should be confirmed by identification test. If there is no growth of such type of colonies or identification test is negative it indicates absence of Salmonella and product pass the test.

5.3 Total aerobic microbial count

Sample preparation (Solution A): Prepare a sample by dissolving 1 ml of the product in 10 ml sterile buffer chloride peptone water of pH 7.0 or nutrient broth.

Procedure: Using sterile pipette tips 1 ml of solution A, two times is added in 90 mm diameter of sterile petriplates in duplicate, sample is then swirled with sterile molten and previously cooled at 45 ºC Soyabean casein digest agar. The plate is allowed to solidify and incubate at 30-35ºC for 5 days.

After completion of incubation period count is taken and results are noted as, CFU/ml of product.

5.3.1 Limit: NMT 100 cfu/ml

6. Assay: Determine by Liquid Chromatography

6.1 Test Solution: Weigh accurately 5 g of Sucralfate suspension in 25 ml volumetric flask. About 10 ml of mixture of 2 M Sulphuric acid and 2.2 M Sodium hydroxide is added and sonicated for 5 minutes, keeping the temperature of the mixture below 30 ^{0}C. The volume of the solution is made up to 25 ml with 0.1 M Sodium hydroxide. Centrifuge the resulting solution and filter the supernatant liquid through nylon filter of 0.2 µm porosity.

6.2 Reference Solution: Weigh accurately about 450 mg of Sucralfate reference standard in a 100 ml beaker. About 10 ml of a mixture of 2 M Sulphuric acid and 2.2 M Sodium hydroxide is added and sonicated for 5 minutes, keeping the temperature of the mixture below 30 ^{0}C. The solution is maintained at pH 2.0 with 0.1 M NaOH solution. The solution is transferred to 25 ml volumetric flask and make up the volume to 25 ml with water. Filter the resulting solution through nylon filter of 0.2 µm porosity.

6.3 Chromatographic system

Column:	NH_2, 250*4.6 mm,5 µm
Injection volume:	80 µl
Flow rate:	1.0 ml/min
Column temperature:	30^0 C
Detector:	RID

Mobile phase: A buffer solution prepared by mixing 35 g of ammonium sulphate in 900 ml water and dilute to 1000 ml with water and adjust to pH 3.5 with orthophosphoric acid.

6.4 Procedure: Inject the reference solution five times and the test solution. The test is not valid unless the column efficiency is not less than 2000 theoretical plates. The tailing factor is not more than 2.0 and the relative standard deviation for replicate injections in not more than 2.0%.

Calculate the content of Sucralfate in the suspension.

7. Other tests: As per pharmacopoeial requirement.