

# A UV-SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF ZONISAMIDE IN ITS PHARMACEUTICAL DOSAGE FORM.

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Zonisamide is chemically 1, 2-benzisoxazole-3-methanesulfonamide. It is a potent sulphonamide agent having antiseizure activity.<sup>7</sup>

Zonisamide is not official in any of the Pharmacopoeia and hence no official methods for their estimation have been reported. Other unofficial methods reported in literature are various HPLC methods<sup>2-5</sup>.

There is no any spectrophotometric method reported for estimation of Zonisamide in fixed dose combination. The aim of this study was to develop a method for spectroscopic estimation of Zonisamide in bulk sample and its capsule formulation.

### EXPERIMENTAL

**Materials and Methods:** Zonisamide was obtained as a gift sample from Wockhardt Limited, Aurangabad. Acetonitrile used was of analytical grade and obtained from Qualigens. A commercial capsule formulation (Zonisep<sup>®</sup>) each containing 100 mg of Zonisamide were procured from the local pharmacy.

**Instrumentation:** PC based Systronics Double Beam Spectrophotometer 2202 (with 10 mm matched quartz cell).

**Standard solution of Zonisamide:** 50 mg of Zonisamide was accurately weighed and dissolved in acetonitrile to obtain 1 mg/ml solution. The final concentration was brought to 10 g/ml.

**Sample solution:** Twenty capsules were accurately weighed and emptied. Weight of powder equivalent to 50 mg was taken and dissolved in acetonitrile. The solution was filtered and the final concentration was brought to 10 mg/ml.

### ASSAY PROCEDURE

Five sample solutions of same concentration of 10 mg/ml to a series of five different 50 ml volumetric flasks. The absorbance values were measured at 244.8 nm against blank (acetonitrile) and the amount of the Zonisamide present in the sample was computed from its calibration curve.

### RESULTS AND DISCUSSION

The optical characteristics such as Beer's law limits, molar absorptivity, Sandell's sensitivity, and percent relative standard deviation are summarized in *Table 1*. Regression analysis using the method of linear least square was made for the slope ( $\hat{a}$ ), intercept ( $\hat{a}$ ) and coefficient of correlation ( $r$ ) obtained from different concentrations are given in *Table 1*.

### REFERENCES:

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The proposed method has been extended to commercial formulation and the results obtained are presented in *Table 2*.

**Table 1: Optical Characteristics and Regression Equation.**

| Sr. No. | Parameters  | Values                             |
|---------|---|------------------------------------|
| 1.      | $\lambda_{max}$ (nm)                                | 244.8                              |
| 2.      | Beer's Law Limit (g/ml)                             | 5-35                               |
| 3.      | Molar absorptivity                                  | $1.673 \times 10^4$                |
| 4.      | Sandell's sensitivity (mg/cm <sup>2</sup> /0.001AV) | 0.0196                             |
| 5.      | % Relative standard deviation                       | 0.254                              |
| 6.      | <b>Regression Equation</b>                          | Slope ( $\hat{a}$ )                |
|         |   | Intercept ( $\hat{a}$ )            |
|         |   | Coefficient of correlation ( $r$ ) |
|         |   | 0.998                              |

**Table 2: Results of Estimation of Zonisamide in Bulk and its Formulation.**

| Label claim (mg)         | % Concentration* $\pm$ SD | Percent Recovery* |
|--------------------------|---------------------------|-------------------|
| Laboratory - sample      | 100.41 $\pm$ 0.62         | -                 |
|                          | C.V.=0.62                 |                   |
| Zonisep <sup>®</sup> 100 | 99.86 $\pm$ 0.81          | 99.91 $\pm$ 0.62  |
|                          | C.V.=0.81                 | C.V.=0.68         |

\*. Average of six determinations, S.D. = Standard Deviation, C.V. = Coefficient of Variance

To evaluate the accuracy and precision of the method, known amounts of pure drug was added to the pre-analyzed pharmaceutical preparation and the mixtures were analyzed by proposed method and the percent recoveries are given in *Table 2*.

The results indicate that the proposed method is simple, precise, reproducible and accurate and can be used for the routine determination of Zonisamide in bulk as well as in pharmaceutical preparations.

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