Study of Percentage Tinidazole in Different Brands of Antiprotozoal Tablets Contation Tinidazole

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Abstract— Protozoal diseases particularly malaria, leishmaniasis and changes disease, are major cause of mortality in various tropical and subtropical regions. Where Antiprotozoal are drugs to treat infection cause by unicellular organisms that destroy protozoa or inhibit their growth and the ability to reproduce. Protozoal infection transmission can be person to person by infected water or food, direct contact with a parasite, a mosquito or tick. Tinidazole is the most preferred choice of drug for intestinal amoebiasis. The aim of this study is to carry out the quality test of different brands of Tinidazole Tablets I analyzed various parameters such as identification, solubility and % assay to check the quality. All the tablets compared with authorized standard were found within the range.

Key words: Tinidazole, Anti-protozoal, Amoebiasis, Protozoal disease, Anti-protozoal drug

I. INTRODUCTION

The group of organisms known as 'protozoa' are defines by a few of their common characteristics. Protozoa are non-phototrophic, unicellular, eukaryotic microorganisms [1][2] with no cell walls [3]. The term Protozoa was introduced in 1818 for a taxonomic class. [4] Protozoa free-living, play a significant role in the ecology of the planet, and seldom inconvenience the human race. The protozoa are often described as the pinnacle of unicellular complexity. Protozoa cause diseases in animals and humans. Some, like amoebas, which causes Amoebiasis, can be devastating to people worldwide. Others like Trichomonas, cause sexually transmitted diseases and other various protozoal diseases Leishmaniasis, Malaria Toxoplasmosis, giardiasis, trichomoniasis etc. The huge majority of the species, though, are completely harmless. [5]

A drug that destroys protozoa or inhibits their growth and the ability to reproduce. To converse the use of Antiprotozoal drugs we must recognize why these drugs are use. Antiprotozoals are drugs to treat infection caused by organisms called protozoa which are reminiscent of animal, such as Plasmodium. Protozoal infection transmission can be person to person infection of contaminated food, water, and through contact with a parasite, a mosquito or tick. Protozoal disease specially leishmaniasis, amoebiasis, malaria, and changes disease, are major cause of mortality in various tropical and subtropical regions. The resistance of amoebiasis Chloroquine to the former fist line antiamebiasis, Dehydroemetine and Metronidazole and Tinidazole has reached critical levels in many Amebiasis and is producing deleterious effects on human health, wealth and life sprains.[5][6]Antiprotozoal agents or antiprotozoal drugs is a group of pharmaceuticals use in treatment of protozoan diseases.[7] Tinidazole is the antiprotozoal Drug.[8]Tinidazole is the most preferred choice of drug for intestinal amoebiasis[9].

II. MATERIALS AND METHODS

A. Collection of Samples:

I have collected four samples of different brands of antiprotozoal tablets containing Tinidazole then desigenteted as, TZ-1, TZ-2, TZ-3 and TZ-4.

B. Chemical and Reagents:

Methanol, Acetone, Dichloromethane and distilled water, all solvents and reagents used were of analytical grade.

III. METHODS

A. Description

The description of each sample was performed as per the IP volume (III) 2007[10].

B. Identification

The Identification of each sample was performed as per the method given in IP volume (III) 2007[10].

C. Melting Point

The Identification of each sample was performed as per the method given in IP volume (I) 2007[11].

D. % Assay

The % assay of each sample was performed as per the method given in IP volume (III) 2007[10].

IV. RESULTS AND DISCUSSIONS

A. Description

As per IP Tinidazole are pale yellow crystals, crystalline powder. All the samples passed in description test had Pale yellow crystals and crystalline powder. The results are illustrated in table-1.

S. No.	Sample Code	Observation	Result
1	TZ-1	Yellow crystals crystalline powder.	Pass
2	TZ-2	Yellow crystals crystalline powder.	Pass
3	TZ-3	Yellow crystals crystalline powder.	Pass
4	TZ-4	Yellow crystals crystalline powder.	Pass

Table 1:

B. Identification

Identification test was carried out for to check the appearance of API. As per IP Tinidazole shows the absorption maximum at 310 nm, all the samples are passed in this test. The results are illustrated in table-2.

S. No.	Sample Code	Observation	Results
1.	TZ-1	Show an absorption maximum at 310 nm.	Pass
2.	TZ-2	Show an absorption maximum at 310 nm.	Pass
3.	TZ-3	Show an absorption maximum at 310 nm.	Pass
4.	TZ-4	Show an absorption maximum at 310 nm.	Pass

Table 2:

C. Melting Point

As per IP Tinidazole melting point range is 125 to 128 °C. All samples TZ-1, TZ-2, TZ-3, and TZ-4 melting point was found 126ºC, 125ºC, 127ºC and 127°C which is within limit. All samples passed in this test. The results are illustrated in table-3.

S.NO.	Sample Name	Observation	Result
1.	TZ-1	126°C	Pass
2.	TZ-2	125°C	Pass
3.	TZ-3	127°C	Pass
4.	TZ-4	127°C	Pass

Table 3:

D. % Assay

As per IP Tinidazole tablet contain not less than 95.0 per cent and not more than 105.0 % of the stated amount of Tinidazole($C_8H_{13}N_3O_4S$).Assay of sample TZ-1, TZ-2, TZ-3, and TZ-4 were 100.18%, 103.81%, 101.74%, and 95.49% respectively was found within limit.

S. No.	Sample Code	Wavelength	Absorbance	Assay %
1.	TZ-1	310 nm	0.474	100.18%
2.	TZ-2	310 nm	0.564	103.81%
3.	TZ-3	310 nm	0.564	101.74%
4.	TZ-4	310 nm	0.428	95.49 %

Table 4:

Fig: 1-4 represents the graphical presentation of % assay analysis.

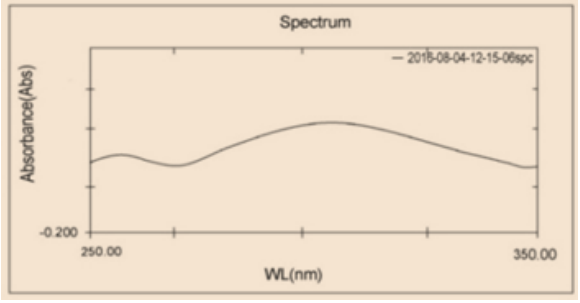

Fig. 1: UV Spectrum of TZ-1

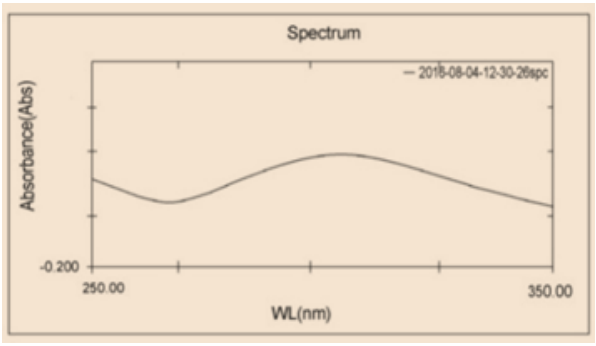

Fig.2: UV Spectrum of TZ-2

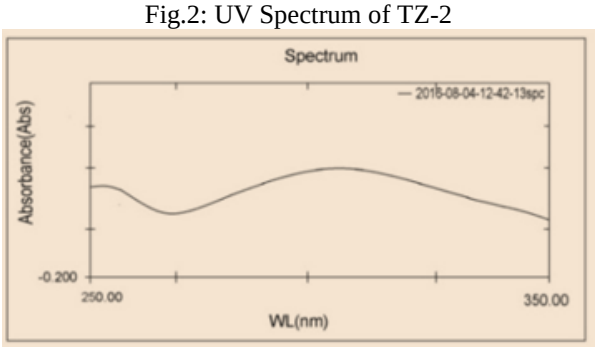

Fig. 3: UV Spectrum of TZ-3

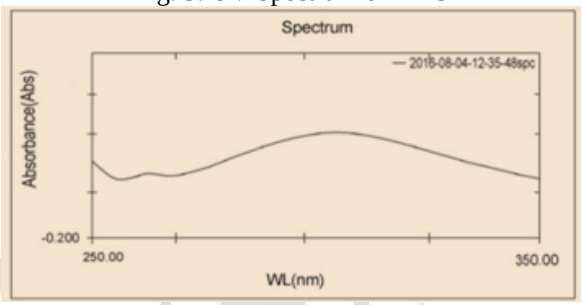

Fig. 4: UV Spectrum of TZ-4

V. Conclusion

In conclusion Percentage (%) variation frequently occupies among drugs of different product and these variation can have significantly effect on the drug activity; lower level of active drug below the official standard frequently result in treatment failure, although higher level of the active drug may predispose patient to drug toxicity.

However, despite the percentage variation, most tablets are within the standard specification.

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