

Dedication

**To my beloved
father, for his
continuous
encouragement
through out my
work; my
mother,
brothers and
sister..**

Acknowledgments

Praise be to Allah who gave me health and patience to accomplish this research work.

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Abstract

Drugs are essential for human life and are of prime importance to the safety of patients.

In this work, the stability of Metronidazole benzoate, in the solid form, towards direct sun light and temperature was investigated.

The results obtained revealed that, temperatures below 50° C dose not affect the stability of Metronidazole benzoate while direct sun light does.

Hydrolysis of Metronidazole benzoate in both basic medium (Sodium hydroxide solution) and acidic medium (Hydrochloric acid) increases the photodecomposition rate of the drug, although it is more stable in acidic medium.

The study shows that photodecomposition of the drug decreases with increasing drug concentration.

Thin layer chromatography (TLC) was found to be a reliable and relevant method of qualitative analysis, yet easy to carry out and inexpensive.

Spectrophotometry can be used to determine the active ingredient (potency) of the drug.

High performance liquid chromatography (HPLC) was found to be convenient for quantitative analysis of the drug photodecomposition products.

IR was found to be a suitable qualitative method of analysis for Metronidazole Benzoate and degraded products; hence it provides a sensitive probe for any degradation in the drug.

الخلاصة

العقاقير والأدوية من أهم الأشياء المؤثرة علي حياة الإنسان وخاصة في وقتنا الحاضر نتيجة لتفشي الأمراض، بما أن تعاطي الدواء يؤثر مباشرة علي حياة الإنسان، وتتأثر العقاقير بالظروف الطبيعية والبيئية مثل درجة الحرارة والأشعة الضوئية، والرطوبة... وتجتمع كل هذه الظروف المناخية في السودان. من هذا المنطلق توجب إجراء هذه الدراسة علي الميترنيويد ندازول ب نزوات. وفي هذا العمل تمت دراسة ثبات بنزوات الميترنيويندازول في شكله الصلب تجاه أشعة الشمس و الحرارة أثبتت النتائج تأثر العقار بأشعة الشمس المباشرة. وكما ثبت أنه عند درجات حرارة في حدود 50 درجة أو أقل لا يتأثر الثبات بالنسبة للعقار.

خلصت الدراسة إلى أن الوسط الحمضي (حامض الهايدروكلوريك) والوسط القاعدي (هايدروكسيد الصوديوم) يزيدان معدل التحلل الضوئي. كما لوحظ انخفاض معدل التحلل الضوئي بزيادة تركيز العقار. عند إجراء التحليل الكمي يائي للعقار الميترنيويد ندازول ثبت أن طريقة كروماتوغرافيا الشرائح الرقيقة يمكن اعتمادها كطريقة للتحليل الكمي في بنزوات الميترنيويندازول. كما تبين أنه يمكن استخدام المطيافية الامتصاصية للتحليل الكمي للعقار بكفاءة. وكذلك مطيافية الأشعة تحت الحمراء (IR) من التقنيات التي تمكن من التعرف على نواتج التحلل الضوئي للعقار. ولكن امثل الطرق الدالة علي دراسة الثبات بالنسبة لهذا العقار كميًا هي طريقة التحليل بواسطة الكروماتوغرافيا السائلة ذات الأداء العالي. HPLC.

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