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Research Article

Microwave Assisted Synthesis and Characterization of 2-(4-Isobutyl-phenyl)-propionic acid ethyl Ester as Antibacterial Agent.

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Abstract
Bacterial resistance has been becoming a big challenges since the development of antibacterial agent. To overcome this developing multidrug resistance. We reported here the synthesis of 2-(4-isobutyl-phenyl)-propionic acid ethyl ester from of 2-(4-isobutyl-phenyl)-propionic acid by microwave assisted solvent free synthesis and characterization by carried out by using IR, NMR. Purity of the compound was checked by using TLC and were evaluated against gram +ve and gram –ve bacteria

Keywords: 2-(4-isobutyl-phenyl)-propionic acid, Multidrug resistance, Escherichia.coli., staphylococcus aureus,

INTRODUCTION

Certain acid derivatives found to be highly active or vital component of medicinal chemistry such as ester, amide, acyl chloride, acid anhydride. Here in we reported the synthesis of ester from acid that result in significant activity against gram and gram.

Experimental section

Melting point were determine by open capillary method Completion of reaction was monitored by TLC using iodine vapour for visualization.IR spectra were recorded on Shimadzu FTIR spectrophotometer.

Synthesis of 2-(4-isobutyl-phenyl)-propionic acid ethyl ester

Microwave method

A mixture of 2-(4-isobutyl-phenyl)-propionic acid 5g(.02 mole) dissolve in 20ml of ethanol to this add 2-3 drops of sulphuric acid as catalyst. Mixture was stirr for 15 min. and was irradiated under microwave oven (800w, 2450 MHz).Completion of reaction was monitored by TLC after completion of the reaction beaker was removed and mixture was extracted with CCl_4 to obtained light yellow liquid as pure compound. Yield 85% and b.p 265-270 ^oC

Table 1:Antibacterial activity of compounds

Comp	*E.coli*		*St.aureus*	
	50µg/ml	100 µg/ml	50 µg/ml	100 µg/ml
1	20.3	23.0	22.2	25.2
SM	26	30	25	28

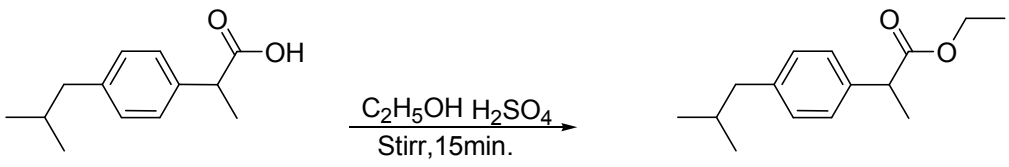
Zone of inhibition in mm, SM=Streptomycin

RESULTS AND DISSCUSION

Above scheme involve the esterification of 2-(4-isobutyl-phenyl)-propionic acid under inert condition in ethanol in the presence of sulphuric acid as catalyst to afford 2-(4-isobutyl-phenyl)-propinic acid ethyl ester. The IR spectrum of the compound showed sharp peak at 1735 cm^{-1}, (>C=O of ester), due to CH_3 and CH_2 corresponding in -$COOCH_2CH_3$.

Antibacterial activity

Synthesize compound were evaluated for their antibacterial activity against *E. coli, St.aureus* at



(1)

Scheme-1: Synthesis of 2-(4-isobutyl-phenyl)-propionic acid ethyl ester

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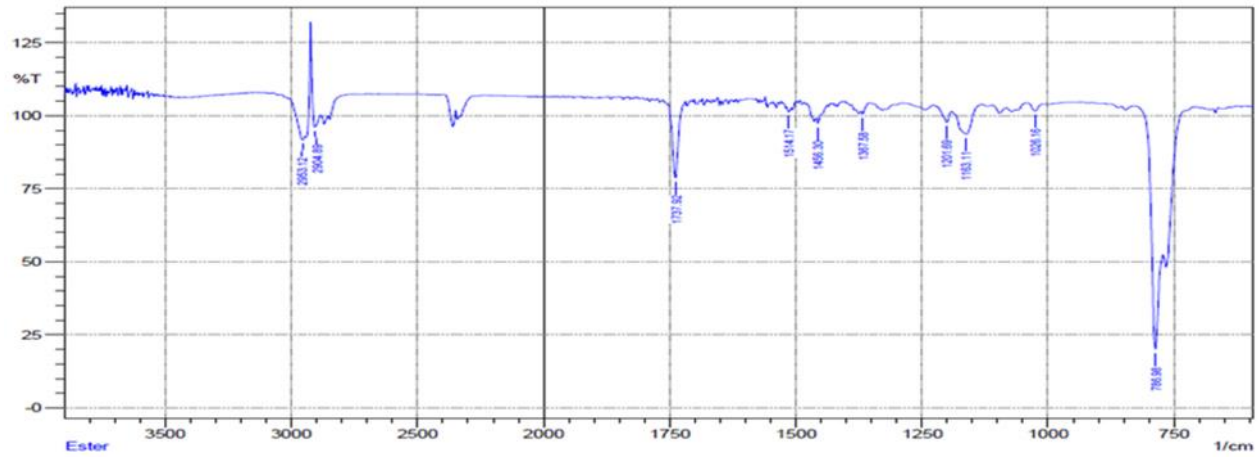

Fig. FT-IR spectrum of Ester

50µg/ml,100µg/ml by well diffusion method Streptomycin was also tested under similar condition for comparision.

CONCLUSION

In conclusion we have presented a efficient method for synthesis of 2-(4-isobutyl-phenyl)-propionic acid ethyl ester by using microwave assisted synthesis technique with high yielded product, solvent less, time saving, energy profitable,efficient then conventional method. Synthsize compound exhibit good to excellent activity as compared to standard.

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