Antifungal activity:

The antifungal activity of ciclopiroxolamine was determined by agar diffusion method by taking various concentrations of standard solutions and *in situ* gels (MIC: 0.125, 0.25, 0.5, 1.0, 2.0 and 4.0 mg).It was observed from the results the zone of inhibition for standard solutions were in the range of 0.9 cm- 2.7 cm, whereas it was in the range of 1.7 cm- 3.1 cm for the *in situ* gels (Table- 6), (Fig. 9-10).

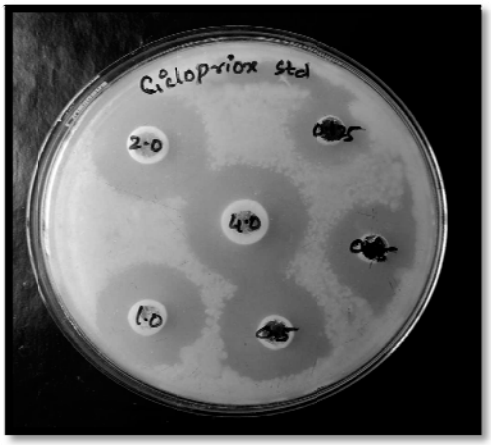

Figure -9.Photography showing the zone of inhibition of ciclopriox olamine standard

Figure -10. Photography showing the zone of inhibition of ciclopriox olamine*in situ* system

Table 6: Antimicrobial activity of *in situ* gel in comparison to reference standard using *Candida Albican*

	0.125 mg	**0.25 mg**	**0.5 mg**	**1.0 mg**	**2.0 mg**	**4.0 mg**
In situ gel	1.7	2.0	2.4	2.6	2.8	3.1
standard	0.9	1.5	1.9	2.1	2.3	2.7

SUMMARY AND CONCLUSION

Gelation temperature of temperature induced *in situ* gels of ciclopiroxolamine decreased with increase in concentration of Pluronic 188 from 35.5^{o}C to 23.4^{o}C for a concentration of 10% to 15% (RR1 to RR4).The gel strength is important because strong gels will support a much higher pressure than weak gels before they are washed out from the site of administration. The gel strength of formulation RR6 and RR7 (112, 116 sec) exhibited good gel strength among all optimized RR code formulation which may due to increase in concentration of Pluronic and its reversible gelation character at 37ºC.The mucoadhesive force is an important physicochemical parameter of topical application in buccal cavity. The mucoadhesive force was significantly increased from 3673.12 dynes/cm^2 (RR1) to 4992.06 dynes/cm^2 for the formula RR7 which consists of 0.03% of Carbomer and 15% of Pluronic, as the concentration of mucoadhesive polymer (Carbomer) increased. This also proved that carbomer has better mucoadhesive property than Pluronic. The *in vitro* diffusion studies conducted through the chicken cheek membrane from the formulae RR1, RR6 and RR7 released 78.5%, 81.4% and 86.6% respectively at the end of 8thhour.The diffusion of drug from formulation RR1 was less may be due to presence of Pluronic 188 in the gel which retards the drug release rate owing to reduction in dimension of water channel. While diffusion of drug through formulation RR6, RR7 was found to be more which may be due to presence of carbomer 934, which undergoes rapid swelling and helps in faster diffusion**.** The value of release kinetics showed that the optimized formulae of thermo sensitive *in situ* gels followed zero order release mechanism and more over the 'n' value of korsemeyer equation confirmed that the release mechanism was fickan.

The preparation RR7 was the best formula among the reversible thermo sensitive ciclopiroxolamine*in situ* gels with all the necessary characters of the *in situ* gels for mucoadhesion to effectively treat the oral thrush.

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