Prove that, $\dfrac{\cot\theta+\cos ec\theta-1}{\cot\theta-\cos ec\theta+1}=\dfrac{1+\cos\theta}{\sin\theta}$

$$\text{LHS} = \frac{\cot\theta+\cos ec\theta-1}{\cot\theta-\cos ec\theta+1}$$

$$=\frac{\cot\theta+\cos ec\theta-1}{\dfrac{(\cot\theta-\cos ec\theta)}{(\cot\theta+\cos ec\theta)}\times(\cot\theta+\cos ec\theta)+1}$$

$$=\frac{\cot\theta+\cos ec\theta-1}{\dfrac{\cot^2\theta-\cos ec^2\theta}{\cot\theta+\cos ec\theta}+1}$$

$$=\frac{\cot\theta+\cos ec\theta-1}{\dfrac{-1}{\cot\theta+\cos ec\theta}+1}$$

$$=\frac{(\cot\theta+\cos ec\theta-1)(\cot\theta+\cos ec\theta)}{\cot\theta+\cos ec\theta-1}$$

$$=\cot\theta+\cos ec\theta$$

$$=\frac{\cos\theta+1}{\sin\theta} = \text{RHS}$$