INTRODUCTION

Changes resulted by the decrease in 17-β Estradiol (E2) and its replacement with Estrone hormone in menopause, both cause quality of life to reduce and various diseases to appear. Studies carried out recent years prove that, hormone replacement therapy has resulted in pathological consequences, and these studies recommend the use of alternative herbal approaches. In this study, we aimed at investigating the antioxidant effect of Momordica charantia (Bitter melon) on experimental ovariectomized rats and the changes in estrogen receptor gene levels (ESR-α, ESR-β).

MATERIALS and METHODS

In the study, overectomy model was composed by ligaturation and applied fruit extract of Momordica charantia (MCE, 2g/kg orally) for 30 days. Serum E2 levels were observed by ELISA, tissue cytokine levels (TNF-alpha, IL-6, IL-10) and NF-κB protein expressions were measured by western blotting. Estrogen genes ESR-α, ESR-β were observed by RT-PCR.

RESULTS

In our findings, serum E2 decreased in overectomy group (p<0.05) and reduced by the application of MCE (p<0.05 Fig 1). MCE suppressed pro-inflammatory cytokines as TNF-α and IL-6 in uterus tissue (p<0.05 -0.001, Fig 2). On the other hand, the IL-10 levels were up regulated with MCE treatment (p<0.01). While ESR-α, ESR-β gene were reduced in overectomy, increase was observed by means of MCE application (p<0.05-0.001, Fig 3).

CONCLUSION

In consequence; Momordica charantia plant has displayed an effect on ovariectomized rats in both gene and protein level, by the effect of phytoestrogen and anti-inflammatory; and it may contribute to the development of new medicine that can be used in the period of menopause.

Figure 1. Serum E2 levels of rats (* compare with sham, + compare with OV)

Figure 2. Western blot analysis. A) Representative immunoblots of bands of cytokine (TNF-α, IL-6, IL-10, NF-κB 65, β-actin) in rats uterus tissue B) Signal activations were assessed by densitometry analysis of immunoblots. Ratios of proteins are expressed as fold increase sham values. (* compare with sham, + compare with OV)

Figure 3. Gene expressions analyzed using RT-PCR in rats uterus tissue. RT-PCR A-C ESRα B-D ESRβ bands are representative of 3 separate experiments. The quantitative intensities of each band after normalization with β-actin ( * compare with sham, + compare with OV)

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