The objective of the present study was to investigate the effect of phenolic and alkaloid extracts of Mentha spicata and Mentha longifolia on some physiological and biochemical parameters in female rats.

Sixty six mature female rats were used, the animals were put in the animal house of the Biological department/collage of Science/Thi-Qar university, under the standard conditions of temperature and light and nutrition.

The study includes 2 main experiments: the first one carried out on (30) mature female rats they were divided randomly into fife equal groups, each group consist of (6) rats, the first group(control group) was injected by (0.5ml/animal) from normal physiological saline (0.9% NaCl), the second and third groups were injected by (0.5ml/animal) of (200-400)mg/kg of M.longifolia phenolic extract respectively, while the fourth and five groups were injected by (0.5ml/animal) of (200-400)mg/kg of M.spicata phenolic extract respectively, and the animals were injected intraperitonially for 30 dayes as one dose daily.

The second experiment carried out on (36) mature female rats they were divided randomly into six equal groups, each group consist of (6) rats, the first group was injected by (0.5ml/animal) from normal physiological saline (0.9% NaCl) and considered as a negative control group, the second group was injected by (0.4ml/animal) from normal physiological saline (0.9% NaCl) and (0.1 ml/animal) of Dimethylselfuoxide (DMSO) and considered as a positive control group, the third and fourth groups were injected by (0.5ml/animal) of (200-400)mg/kg of M.longifolia alkaloid extracts respectively, while the five and six groups were injected by (0.5ml/animal) of (200-400) mg/kg of M.spicata alkaloid extracts respectively, The alkaloid dissolved with 0.1ml DMSO and 0.4ml of normal physiological saline. The animals of each experiment were injected intraperitonially for 30 dayes as one dose daily.

The results showed that non significant change in the body weight of the female rats treated with phenolic and alkaloid extractes of each plant compared with control group. The present results indicated a significant decrease in Hb and PCV of the female rats treated with phenolic extractes of M. longifolia and alkaloid extractes of M.spicata at dose (200-400)mg/kg, a significant increase in the WBC of the female rats treated with phenolic extractes of M. longifolia at dose (200-400)mg/kg, and the female rats treated with alkaloid extractes of M. spicata and M.longifolia at dose (200-400)mg/kg compared with control group. The results showed a significant decrease in the glucose level of the female rats treated with phenolic extractes of M. longifolia at dose (200-400)mg/kg and phenolic extractes of M. spicata at dose 200mg/kg, while non significant with alkaloid extracts. The results recorded a significant decrease in the serum level of cholesterol and TG of the female rats treated with phenolic extractes of M. longifolia at dose (200-400)mg/kg and phenolic extractes of M. spicata at dose 200mg/kg, and asignificant decrease in the TG of the female rats treated with alkaloid extractes of M. spicata at each dose. The results showed a significant decrease in the MDA and CP of the female rats treated with phenolic extractes of M. longifolia at dose (200-400)mg/kg and phenolic extractes of M. spicata at dose 200mg/kg, and a significant decrease in the MDA with alkaloid extractes of M. spicata at dose (200-400)mg/kg. and a significant decrease in the CP with alkaloid extractes of each plant at dose (200-400)mg/kg compared with control group.

The results showed a significant decrease in the AST with phenolic and alkaloid extractes of M. spicata at dose 200mg/kg. and a significant decrease with alkaloid extractes of M. spicata at dose 400mg/kg. and a significant increase in the ALT with phenolic and alkaloid extractes of M. spicata at dose (200-400)mg/kg compared with control group.

The results showed a significant increase in the HDL and a significant decrease in the LDL with phenolic extractes of M. longifolia at dose (200-400)mg/kg.and decrease with alkaloid extractes of M. longifolia at dose 400 mg/kg. The results showed a significant decrease in the LDL and VLDL alkaloid extractes of each plant at dose (200-400)mg/kg compared with control group.

Also the study showed that phenolic extractes caused a significant increase on sex hormones level of female rats. a significant increase in the FSH and LH with phenolic extractes of each plant at dose (200-400)mg/kg. and a significant increase in the estrogen with phenolic extractes of M. longifolia at dose 400mg/kg. and M.spicata at dose(200-400)mg/kg. a significant increase in the progesterone with phenolic extractes of M. spicata at dose 400mg/kg. While the study showed that alkaloid extractes caused a significant increase on sex hormones level of female rats. a significant decrease with alkaloid extractes of each plant at dose 400 mg/kg and a significant decrease in the FSH with alkaloid extractes of M. spicata at dose(200-400)mg/kg. and a significant decrease in the LH with alkaloid extractes of each plant at dose(200- 400)mg/kg. and a significant decrease with alkaloid extractes of M. longifolia at dose 200mg/kg and M.spicata at dose(200-400)mg/kg compared with control group.