INTRODUCTION

Certain acidic amino acids, such as glutamic, aspartic and cysteine, are both neuroexcitatory and neurotoxic. Glutamate, the most widely studied of these amino acids, is routinely used in electrophysiological studies to artificially induce neuronal firing. While monosodium glutamate (MSG) is a widely used as food additive, but it is also claimed as a wholly innocuous substance. Several reports suggested that it may exert a toxic effect when given to both experimental animals and man. MSG has been implicated in the cause of the Chinese Restaurant Syndrome in man. Some studies showed that pharmacological doses of MSG fed orally to humans precipitated headache, burning sensation, facial pressure and chest pain.

Experimentally, MSG has been shown to produce lesions in the brain of various mammals. The arcuate nucleus of the mediobasal hypothalamus, a region contiguous with the median eminence and one that accumulates subcutaneously administered MSG, is particularly vulnerable to the toxic effects of MSG. It is well established that this nucleus of the hypothalamus, an important neuroendocrine regulatory center, secretes specific neurohormones, which are carried to the anterior pituitary gland where they exert stimulatory or inhibitory influences on the synthesis and release of the trophic hormones. Chemical or physical damage to the hypothalamus may thus result indirectly in changes in the contents and release of the anterior pituitary hormones and, consequently, in changes in the growth and function of the respective target organ.

Since the effects of neonatal administration of MSG into rat are still in controversy, the aim of this study is to determine the effect of MSG on growth and reproductive capacity in female rats to ensure whether MSG can be used as food additive, especially for infant foods which are not rich in natural glutamate content but may contain substantial quantity of glutamate added for flavouring.