I. INTRODUCTION

Mango (*Mangifera indica* L.) is botanically belonging to Family Anacardiaceae. It is an evergreen fruit crop native to South Eastern Asia, where it has been cultivated there for about 6000 years ago (Albert, 1986). Mango trees are adapted to a warm tropical monsoon climate with a pronounced dry season followed by rains. Therefore, it cultivated in many countries of the world and nowadays becomes one of the most important fruit crop in India; Ceylon; Philippines; South East Africa; Australia and Brazil.

It is so worthy to mention from the historical standpoint that mango was introduced to Egypt around 1825 and eversince its acreage has been gradually extended throughout the country in order to meet the steady increase in demand for its desirable fruits for either the local Egyptian market or export.

Mango occupies an important share in the total fruit production of Egypt, which amounted to (1038325 Feddans), whereas mango ranks the fourth (85972 Feddans) after Citrus (355518 Feddans); grapes (141233 Feddans) and olive (103933 Feddans); according to the Agricultural Census of the Ministry of Agriculture, 1999 year*. The total area of mango orchards representing about 8.28 %of the total area of fruit orchards with total production 287226 Tons and an average 4.47 Tons per Feddan.

Unfortunately, most mango orchards are characterized in many area by their relative/or severe lower yielding which reflected negatively in mango growers income.

Generally, several factors affect productivity of the existing bearing mango trees in Egypt. But, prominent ones among such factors are those related to the unbalanced nutritional status, behaviour and characteristics of

some vegetative and flowering aspects of these trees. Besides, incidence of
both malformation forms (vegetative and floral) especially such orchards
cultivated with the sensitive cultivars like as Taimour and Hindi Be-Sinnara.
However, mango malformation has been investigated since 1891 (Prasad et
al., 1965), there is still no fully agreement between investigators about the
real reason causes this disorder. However, voluminous literature dealing with
various findings of several investigators pertaining the reasonable factors about
mango malformation is available, but they are greatly varied in this concern.
Some of them reported that malformation is a physiological disorder and it be
considered as a special hereditable characteristic of cultivar itself, whereas
susceptibility of various mango cultivars varied from one to another (Ram et al.,
1990) and (Singh and Singh, 1996).

Moreover, other demonstrated that such phenomenon may be attributed
to the unbalanced level in quantity and ratios of either nutritional status (Zora-
Singh et al., 1991) and (Singh et al., 1992) or the endogenous contents of
some growth substances and other compounds, Singh and Dhillon, (1990)
and Raafat et al., (1995 a & b) regarding endogenous level of (IAA) and (GA₃).
While, (Knight, 1995) said that malformation caused by Fungus fusarium.

Thus the present investigation was conducted with the main purpose of
evaluating the response of some growth, floral measurements, terminal buds
behaviour (sprouting nature of the panicles producer organs) and nutritional
status of 3 important mango cultivars (Taimour, Zebda and Hindi Be-Sinnara) in
response to various combinations between girdling and NAA, GA₃ & PP₃₃₃
treatments. Beside, it was also hoped to shed some light on the relationship
between the malformation incidence and endogenous growth substances from
one hand and the possibility of recovery through exogenous applied growth
substances from the other.