

P R E F A C E

Among the grasses grown in the tropics, Pangola grass (Digitaria decumbens) has recently found favour in many areas. It is recognised that increased production is possible from it, but an inspection of its nutritive value analysis hardly accounts for the levels of output that are usually attained. Although Murphy (1964) only intended his work to be exploratory, he showed that Pangola grass had a low oestrogenic activity. This could exhibit itself by causing an increased appetite and better food conversion. The aim of this project was to follow up Murphy's experiments, with the intention of finding, if possible, the compound or compounds that are responsible for the activity.

A second objective was to try and fill a gap that has developed since the last literature review was published in the late fifties. Several reviews on oestrogenic compounds in plants have dealt very fully with particular aspects but there has seldom been an attempt to link these aspects into a biochemical whole. The presence of isoflavones in a fodder plant creates a complex question composing biosynthesis and physiological functions in the plant and physiological activity in the animal. Comparison of the oestrogenic compounds extracted from plants with the known oestrogenic hormones and synthetic oestrogenic compounds leads to a greater understanding of the relationship of chemical structure and function.

Unfortunately time is seriously limited on a D.T.A. project and both the review and the experimental work have suffered because of this. The literature search has not been as comprehensive as was desired and the experimental work has apparently revealed a relationship between trace minerals and oestrogenic activity which it has not been possible to investigate further.

Throughout this thesis the term 'plant oestrogen' has been excluded. A 'plant oestrogen' implies that not only may it have an oestrogenic effect when administered to an animal but that it might also be similarly physiologically active in a plant. This latter has not been shown to be the case. For this reason the term 'oestrogenic compounds in plants' has been adopted. This is more clumsy in use but it is a stricter description. Only the natural steroid sex hormones are referred to as oestrogens, e.g. oestradiol. An oestrogenic compound is any compound which exhibits in the animal properties similar to that of the oestrogens. Thus oestrone is an oestrogen, stilboestrol is a synthetic oestrogenic compound and daidzein is an oestrogenic compound extracted from plant material. It should be noted that stilboestrol is termed diethylstilboestrol in American literature.