INTRODUCTION

We make two introductory observations on the cytotaxonomy of the genus *Medicago* L. First, research in this area is extensive. Workers are attempting to hybridize *Medicago sativa-falcata* with almost every taxa of the genus and other related genera, especially *Trigonella* L. Some published results are misleading because of misidentification of material. Research workers frequently rely solely on labels attached to the seed samples they receive from botanical gardens and other institutions. Lesins and Lesins (32) found that among 47 seed samples labeled as *M. hispida* Gaertn. (Syn. *M. polymorpha* L.) 23 were not *M. hispida*. It should be the responsibility of each researcher to ascertain that his material is properly identified. For example, confusion exists with *M. gaetula* (2, 53). In the first place, the name *M. gaetula* has never been elevated to the species rank. Urban (57) used it to denote a form of *M. sativa* Döll. [\[M. sativa, subsp. macrocarpa, d (var.) vulgaris, β (forma) gaetula Urb.\]] with a note that it may be a separate species. Very probably Sprague’s material (53) was *M. coerulea*, as Grossheim (18) did not mention the name *M. gaetula*. This conclusion is supported by the fact that *M. coerulea* is diploid, whereas we found that three accessions in our collection to which the *gaetula* name had been attached were tetraploids with $2n = 32$. It is hoped that the key and photographs provided in this chapter may be helpful in correct identification of taxa.

Secondly, this monograph, though mainly a reference on alfalfa, will help workers with broader interests in forage production. Species other than *M. sativa*, e.g., the medics, are of interest as forage crops. Introduced annual medics are valuable range plants in Australia and southern USA. There certainly will be differences in productivity among different sources and the exploration of these may well pay off. The information in this chapter may