SUMMARY

The disposal of distillery yeast biomass poses problems owing to their effect on environment. Hence a suitable technology has to be developed for the safe disposal and effective use of the same and cultivable land and effective feed formulation of chicks growth development. Biological treatment of industrial waste biomass has the potential to solve many of our environmental problems. The study was undertaken to check the effectiveness of distillery yeast biomass in agriculture and poultry which was summarized below.

Sample collection and analysis of physico-chemical parameters

- The yeast biomass waste sample were collected from National Co-Op Sugar Milland Distillery Industry, Madurai – 625104, Tamil Nadu, India.
- The physico-chemical parameters of yeast biomass sample were analyzed and given below. The parameters viz; Colour (Dark brown), pH (4.72), Protein (3.8 mg/g), Carbohydrates (3.3mg/g), Lipid (2.3 mg/g), Calcium (1.5 mg/g), Magnesium (0.5 mg/g), Sodium (0.8 mg/g), Potassium (0.3 mg/g), Phosphorous (2.8 mg/g) and Chloride (0.5 mg/g) were determined.
- The enumerations of microorganisms were obtained from yeast biomass waste sample. The microbial population was 20.38 $\times 10^6$cfug$^{-1}$ for bacteria, 8.0 $\times 10^4$cfu g$^{-1}$ for fungi, 3.0 $\times 10^5$cfu g$^{-1}$ for actinomycetes and 5.5 $\times 10^7$ cfu g$^{-1}$ for yeast.
The population dynamics of Azospirillum, Azotobacter, Bacillus, Pseudomonas and Trichoderma culture in the soil amended with different concentration of yeast biomass at different periods. The results revealed that all the isolates recorded maximum population at 2 g of yeast biomass in 3rd week and recorded their lowest population at control.

The influence of different concentrations of distillery yeast biomass on the growth of Azospirillum, Azotobacter, Bacillus, Pseudomonas and Trichoderma in terms of culture turbidity were studied for different incubation period. The highest turbidity registered at 1 g of yeast biomass in 96 hrs for Azospirillum (1.683) for Pseudomonas (0.988) and for Trichoderma (0.834 mg 100⁻¹) and at 2 g of yeast biomass for Azotobacter (0.187) and for Bacillus (0.375).

The seed inoculated with 1 g of yeast biomass recorded the highest germination of 100 per cent and vigour index of 960.00 for blackgram and greengram.

The plant height and root length was maximum in all the treatments received 30 g yeast biomass waste on 120th day after sowing for Paddy (69.2 cm and 18.6 cm) and 90th day after sowing for Blackgram (60.0 cm and 15.0 cm), Greengram (45.9 cm and 13.3 cm), Maize (63.8 cm and 27.7 cm) and Brinjal (29.0 cm and 16.4 cm).

The chlorophyll content was maximum on 90th day after sowing in all the treatments at 20 g of yeast biomass. The chlorophyll contents were 2.37 mg/g, 2.78 mg/g and 2.42 mg/g for Paddy, Blackgram and
Greengram respectively. For Maize (2.36 mg/g) and Brinjal (2.03 mg/g), the maximum chlorophyll contents were recorded at 30 g of yeast biomass.

- The carbohydrate contents were 27.77 mg g\(^{-1}\) for paddy and 22.53 mg g\(^{-1}\) for maize while the maximum protein content of blackgram and greengram were 11.96 mg g\(^{-1}\) and 11.40 mg g\(^{-1}\) respectively at 20 g of yeast biomass treatment.

- The highest values of yield parameters for Paddy were 5.55 number of tillers and 61.00 g of grain yield per plant in pot culture conditions at 20 g of yeast biomass treatment.

- The maximum values of yield parameters for Blackgram were 17.82 numbers of pods and 13.54 g grain yield per plant at 30 g of yeast biomass under pot culture conditions whereas for Greengram, the values were 17.87 of number of pods, 6.89 number of seeds per pod and 9.23 g grain yield per plant in pot culture conditions.

- The highest values of yield parameters for Maize recorded at 30 g of yeast biomass treatment were 2.0 numbers of cobs and 140.98 g grain yield per plant under pot culture conditions.

- The 20 g of yeast biomass treatment recorded maximum values of 8.67 numbers of fruits and 150.00 g average fruit yield per plant in Brinjal.

- The maximum weight gain showed by the broilers fed with concentrate feed enriched with 25 g yeast biomass on starter stage was 912 g at 4\(^{th}\) week and on finisher stage was 1735.00 g at 8\(^{th}\) week.