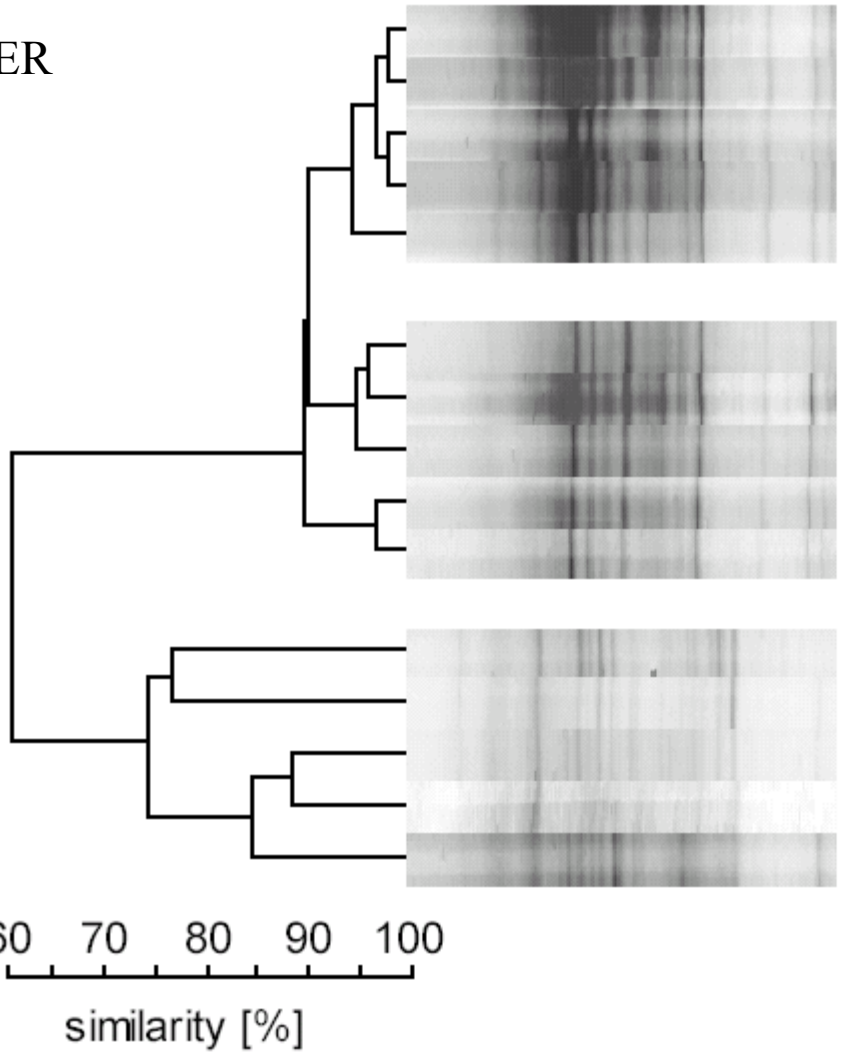
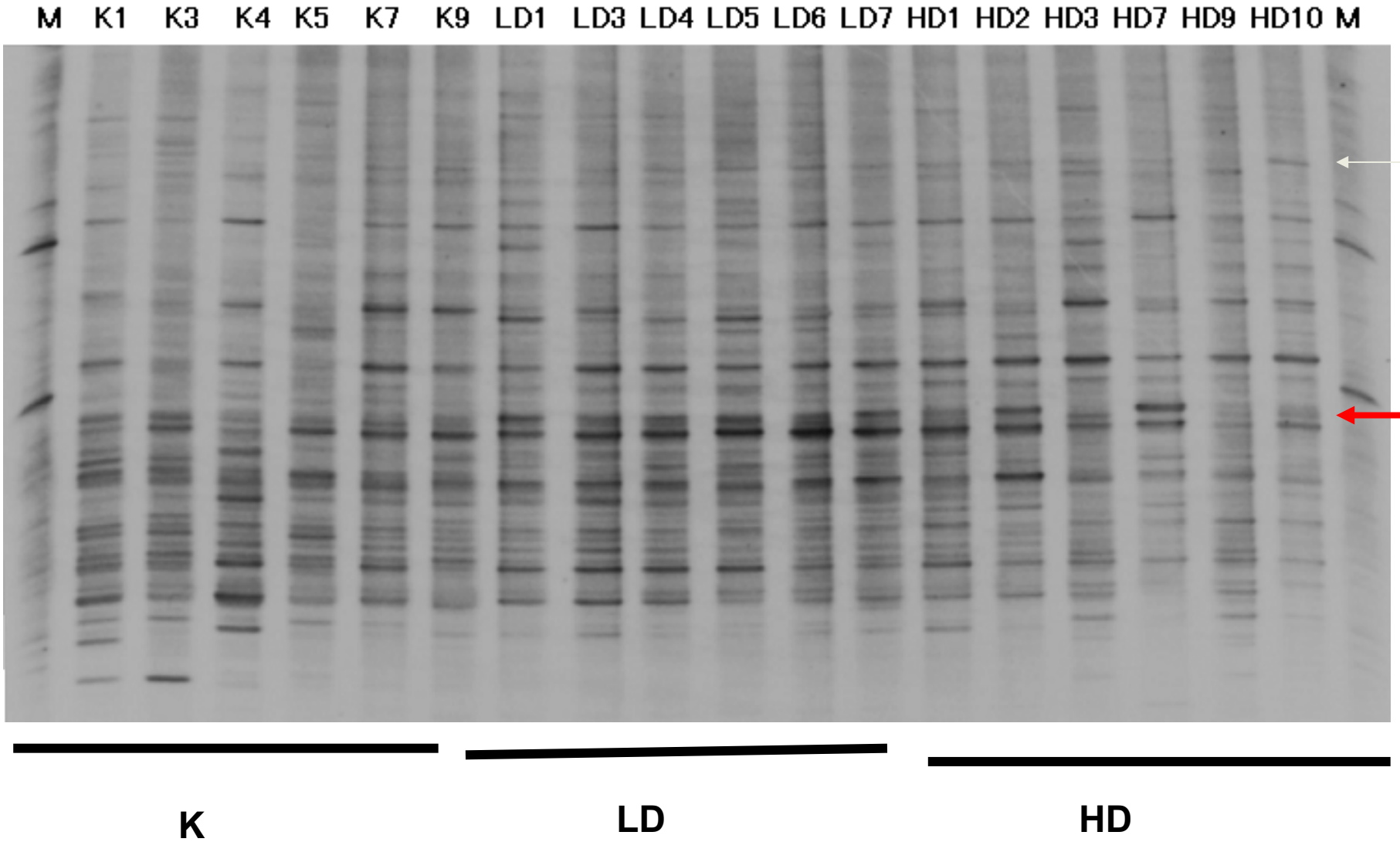
Cluster analysis of DGGE profiles

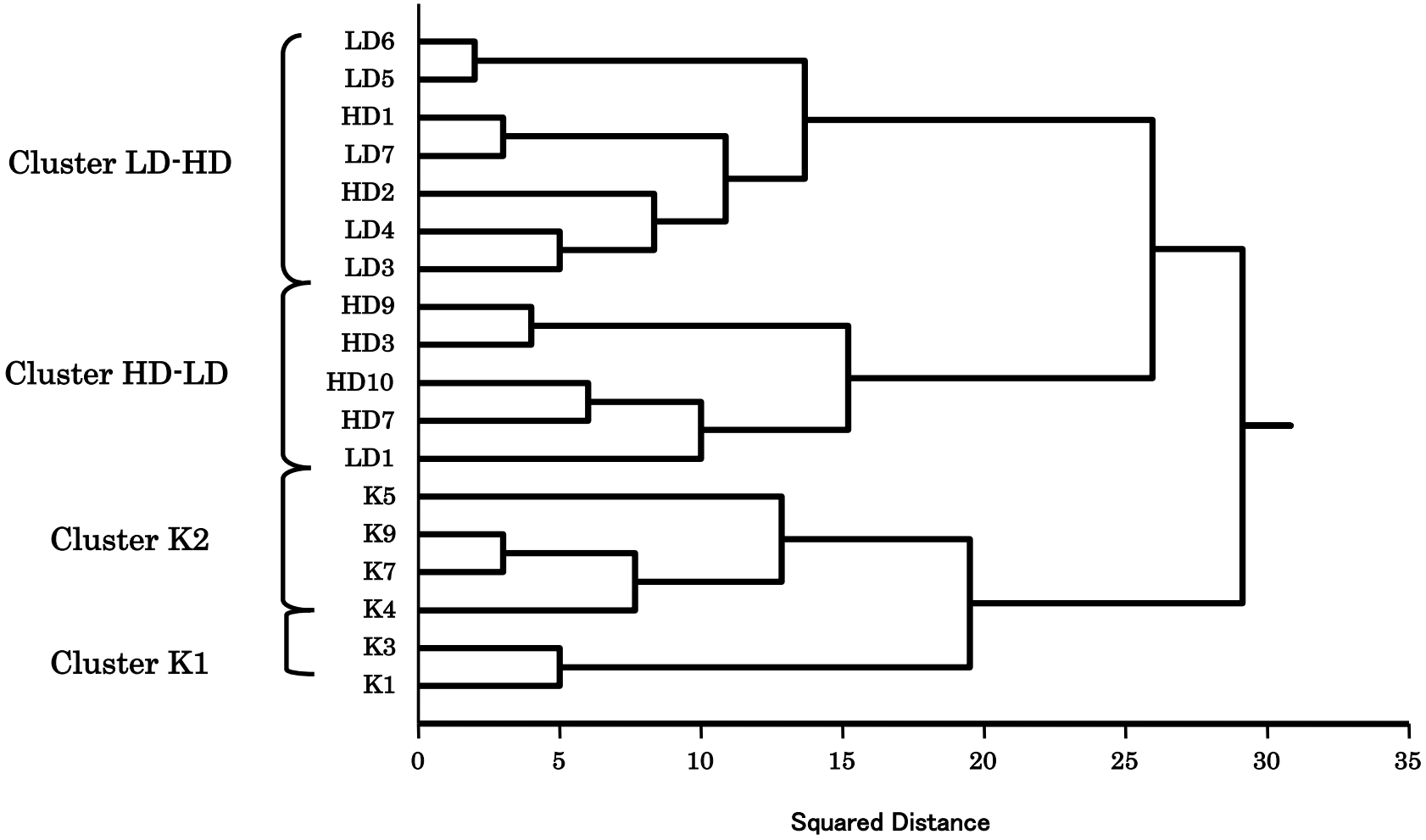
DGGE profiles CLUSTER ANALYSES



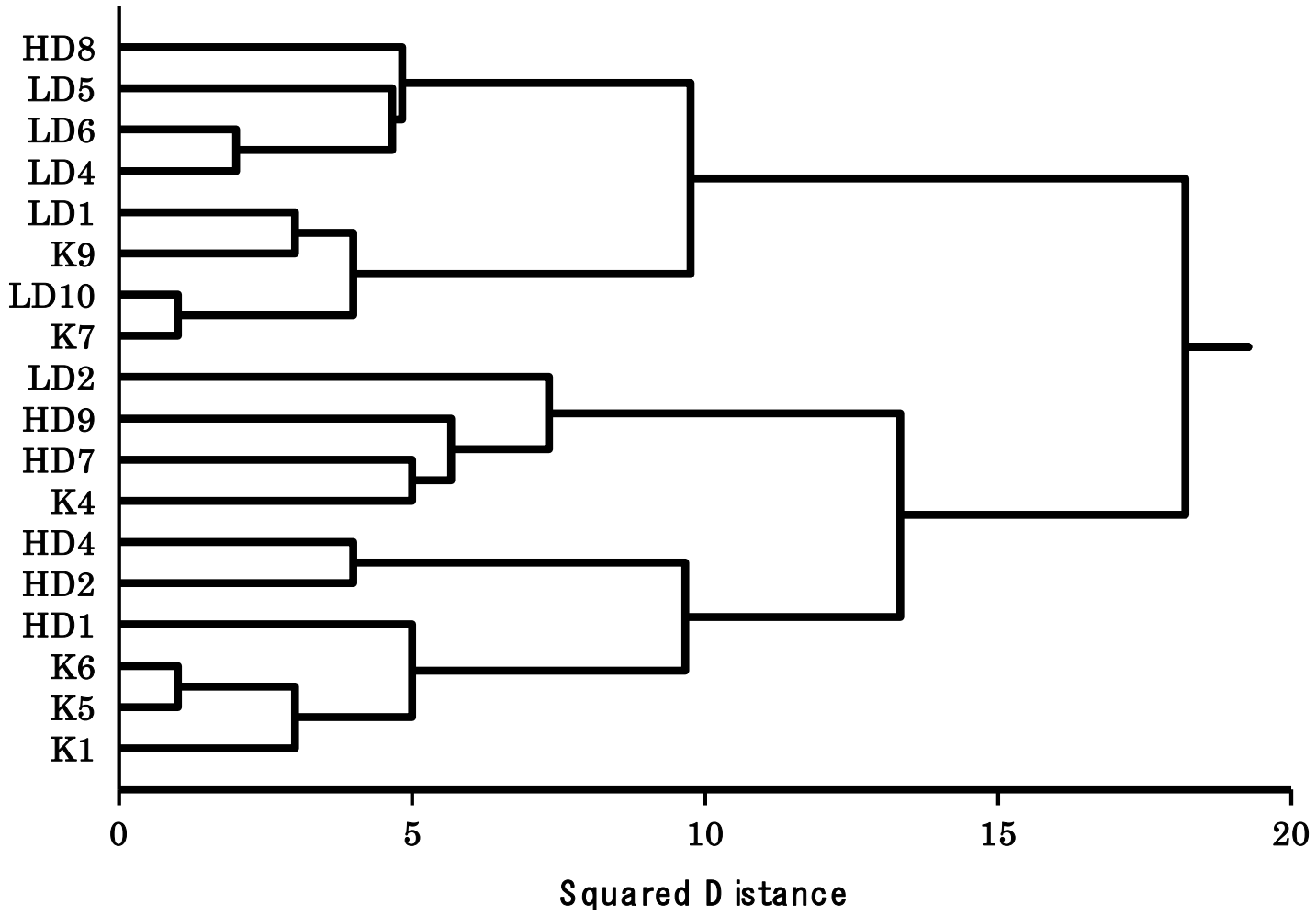
Total Bacteria



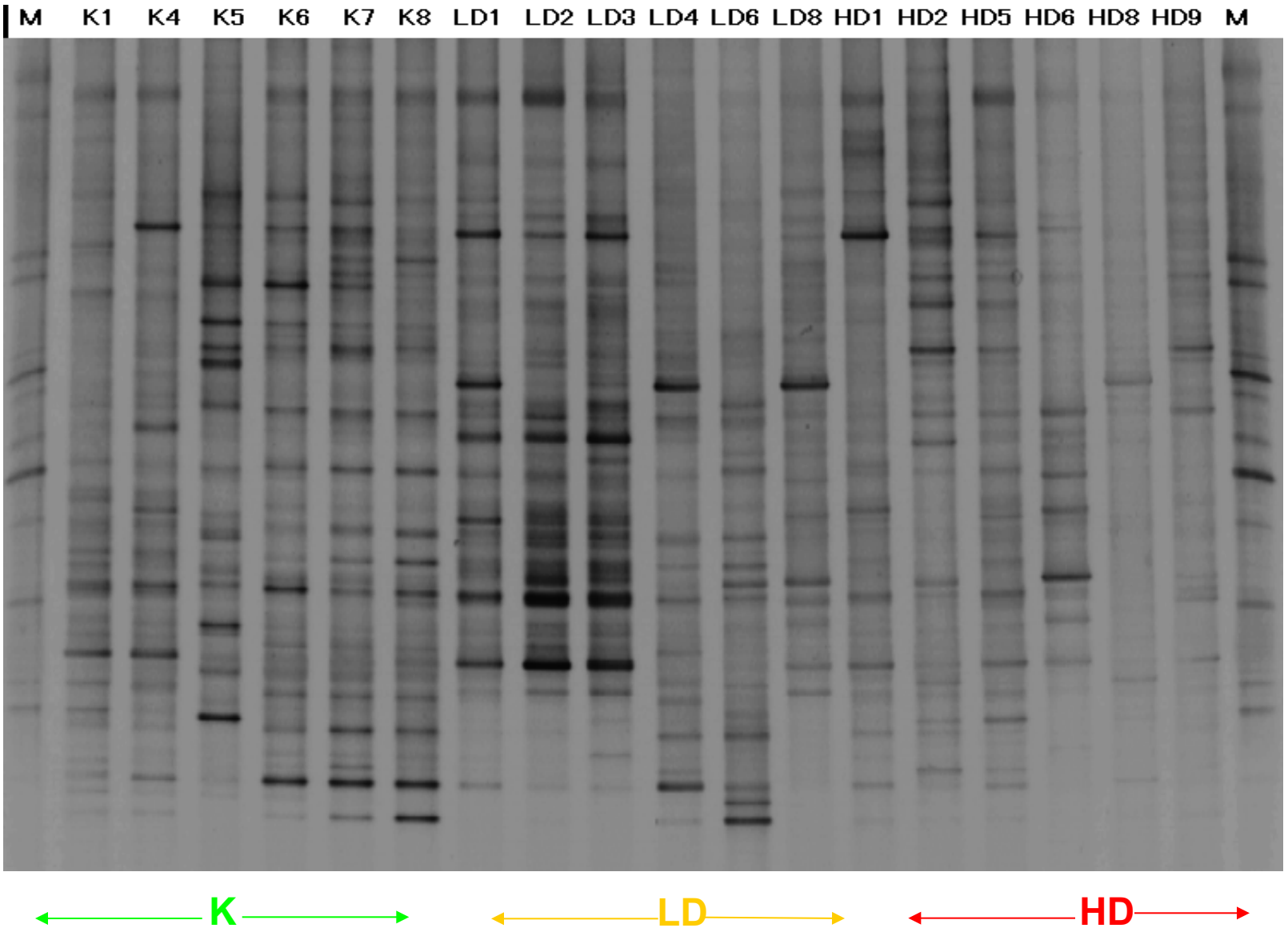
Total Bacteria



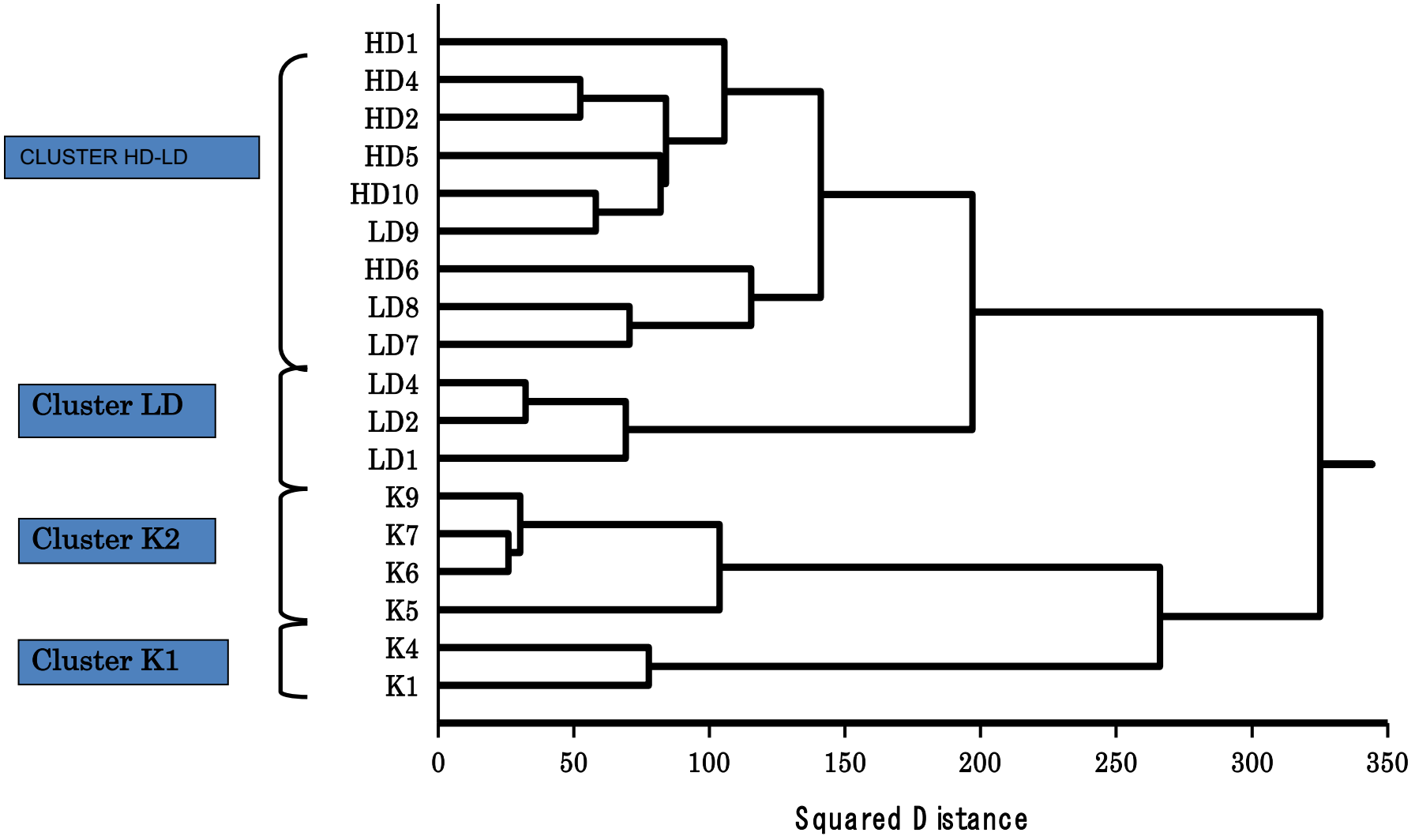
Actinomycetes



Ammonia Oxidizing Bacteria

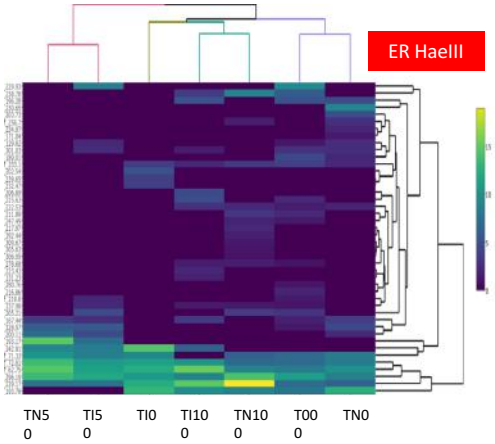


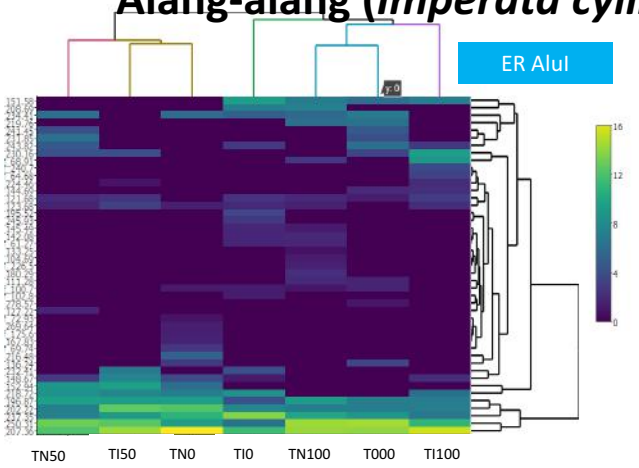
Ammonia Oxidizing Bacteria

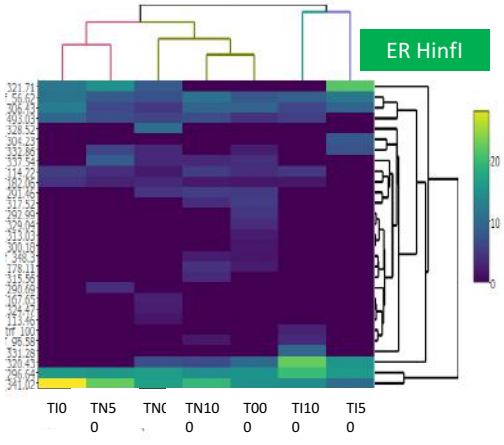


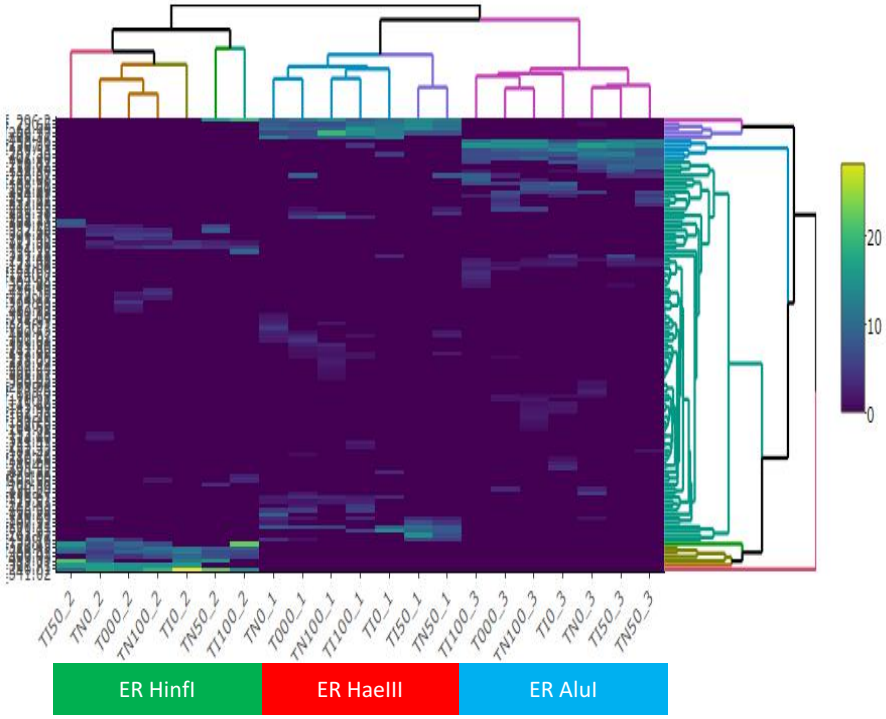
SATREPS PROJECT (2016-2021)

Project for Producing energy and materials Through Revegetation of Alang-alang (*Imperata cylindrica*) Fields









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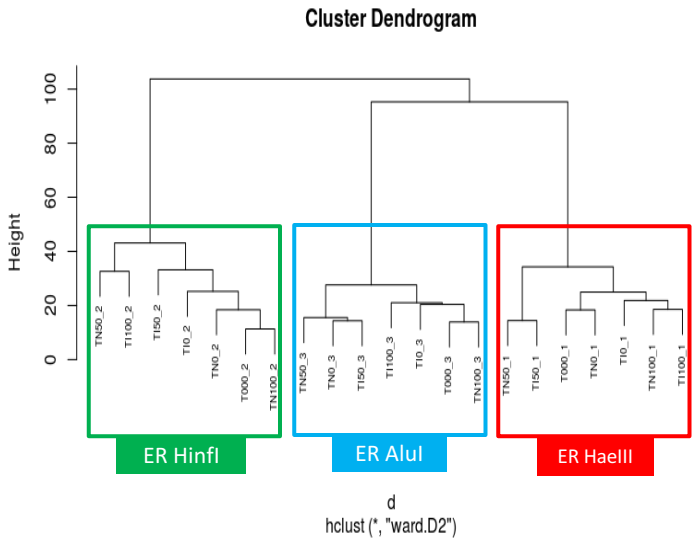
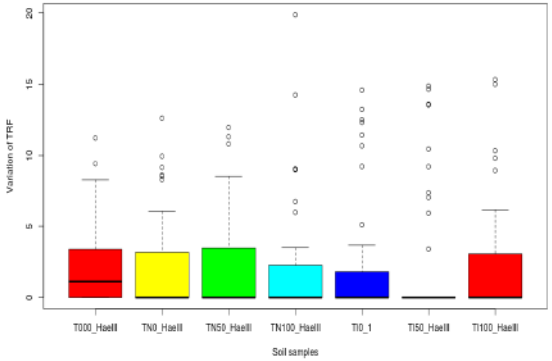
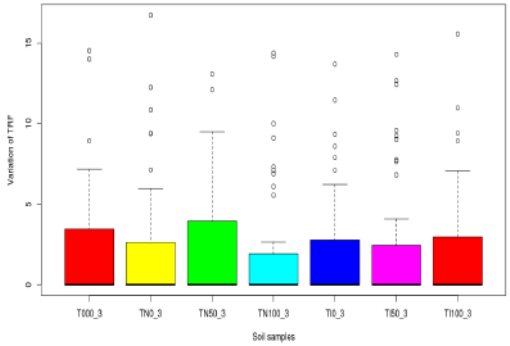
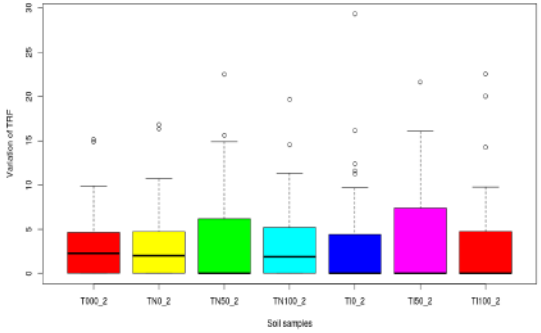




ER HaeIII



ER AluI



ER HinfI

Ecologically and Economically Importance Plants

Why Sorghum?

Monti, A., & Venturi, G. (2003). Comparison of the energy performance of fibre sorghum, sweet sorghum and wheat monocultures in northern Italy. *European Journal of Agronomy*, *19*(1), 35-43
Almodares, A., & Hadi, M. R. (2009). Production of bioethanol from sweet sorghum: A review. *African Journal of Agricultural Research*, *4*(9), 772-780.
Almodares, A., Taheri, R., Chung, M., & Fathi, M. (2008). The effect of nitrogen and potassium fertilizers on growth parameters and carbohydrate contents of sweet sorghum cultivars. *J. Environ. Biol*, *29*(6), 849-852.

Table 1. Comparison of sugarcane, sugar beet and sweet sorghum in Iran.

	Sugarcane	Sugar beet	Sweet sorghum
Crop duration	About 7 months	About 5 - 6 months	About 4 months.
Growing season	Only one season	Only one season	One season in temperate and two or three seasons in tropical area.
Soil requirement	Grows well in drain soil	Grows well in sandy loam; also tolerates alkalinity	All types of drained soil.
Water management	36000 m^3/h	18000 m^3/h	12000 m^3/h
Crop management	Requires good management	Greater fertilizer requirement; requires moderate management	Little fertilizer required; less pest and disease complex; easy management.
Yield per ha	70 - 80 tons	30 - 40 tons	54 - 69 tons.
Sugar content on weight basis	10 - 12%	15 - 18%	7 - 12%.
Sugar yield	7 - 8 tons/ha	5 - 6 tons/ha	6 - 8 tons/ha.
Ethanol production directly from juice	3000 - 5000 L/ha	5000 - 6000 L/ha	3000 L/ha.
Harvesting	Mechanical harvested	Very simple; normally manual	Very simple; both manual and through mechanical

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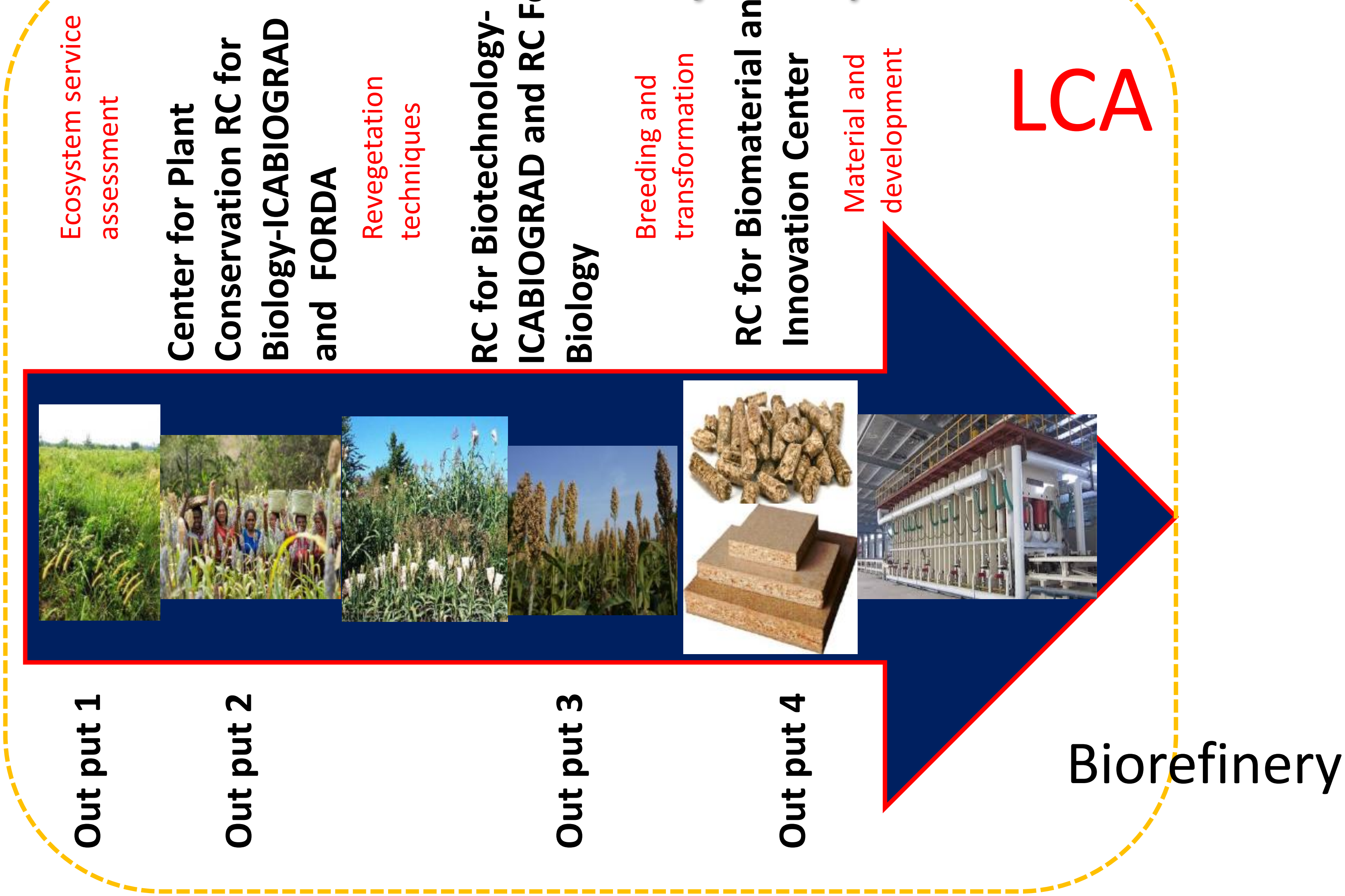
Alang-alang (*Imperata cylindrica*) Fields

Gmelina arborea (Jati putih) -→ 8 months after plantation in Banjaran, West Java

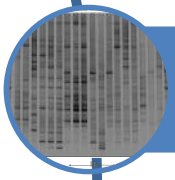
Project Out Put, RD Distribution under Low Carbon Society Principle



Conclusion

Biomass could be produced in marginal land

Revegetation technology should be evaluated according the soil type, climate, beneficial microbial community status



Gene expression analyses in soil will help us to estimate the level of abiotic and biotic stress in marginal land

Plant selection should be based on sustainable biomass production rate

Recovering Biodiversity are important project goal to obtain sustainable biomass for biorefinery project in Indonesia

Research partnership is crucial for obtaining most fruitful result

iBiol (Innovative Bio-Production in Indonesia
LIPI)