



UNIVERSITÄT LEIPZIG

GRAPH THEORY PRACTICAL COURSE: EXPLORATION OF METABOLIC NETWORKS

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WP1: amino acid production per organism

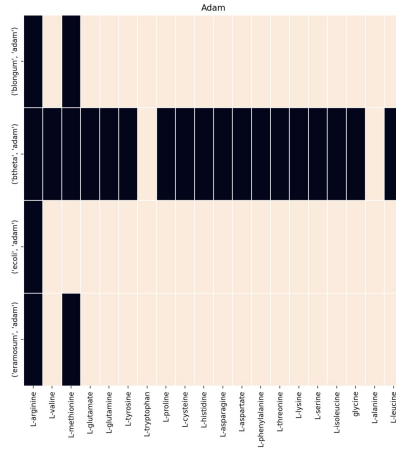


Figure 1: Presence of amino acids dependent on organism and medium in the cleaned networks.

WP2: number of activated reactions

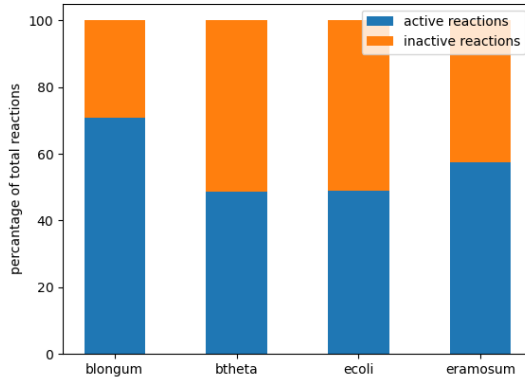


Figure 2: Proportion of active reactions (with flux) and inactive reactions. Flux calculated without compound constraints.

WP2: biomass dependence on essential compounds

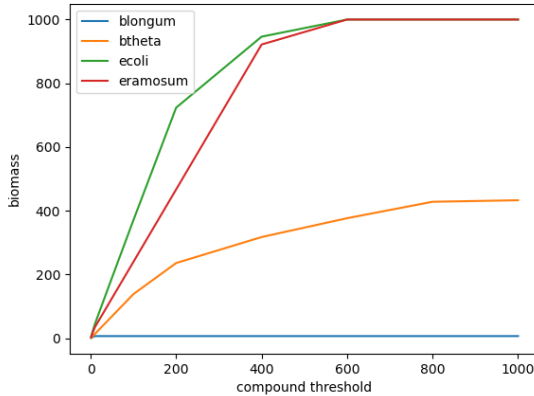


Figure 3: Value of the biomass function at different limitations for import reactions of essential compounds (H₂O, hydronium and phosphate are always unlimited).

WP2: activation level by compound threshold

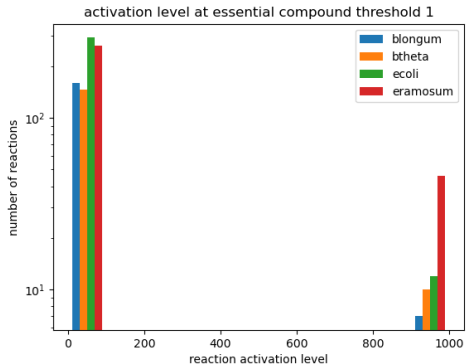


Figure 4: Histogramm of reaction level ($|flux|$). All import reactions for essential compounds (except water, hydronium and phosphate) are limited to -1.

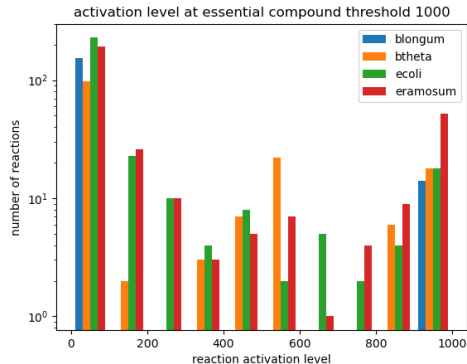


Figure 5: Histogramm of reaction level ($|flux|$). All import reactions for essential compounds are unlimited.

WP2: pathway enrichment test

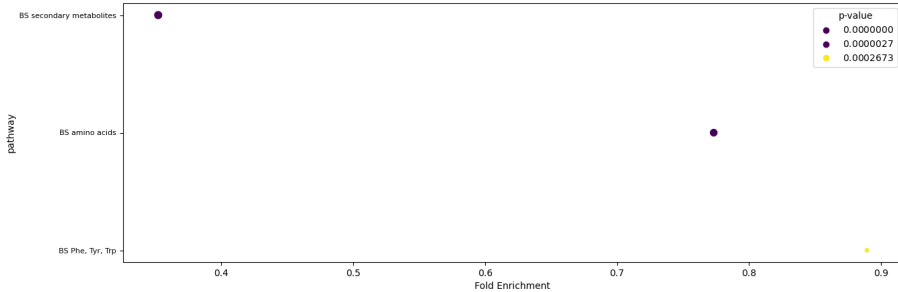


Figure 6: Results of the hypergeometric enrichment test for 562 KEGG pathways. Background are all reactions in the glucose-amino acid graph and foreground are all reactions with flux.

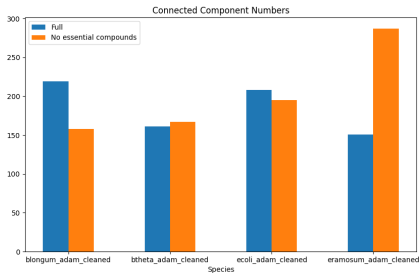


Figure 7: Number of connected components for each atom combined per species. Results are compared between original ATN and an ATN where all essential compounds are removed.

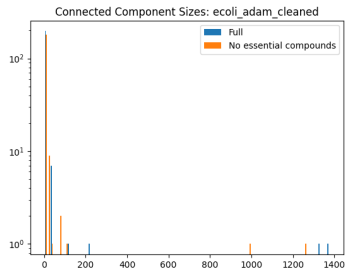


Figure 8: Histogram of the connected components sizes. Results are compared between original ATN and an ATN where all essential compounds are removed.

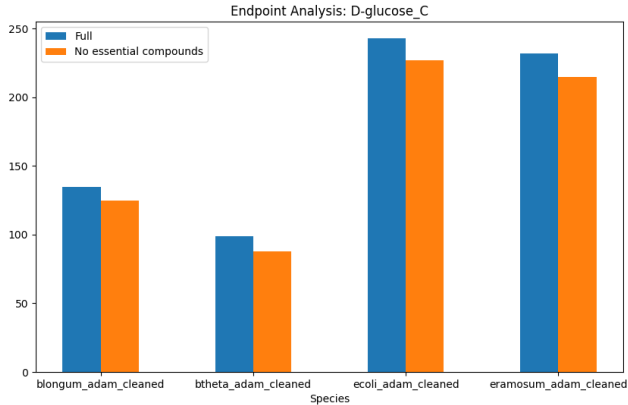


Figure 9: Number of endpoints (compounds not used in further reactions) compared between the species. Results are compared between original ATN and an ATN where all essential compounds are removed.