Model	Type of experiments	Design	Source
Empirical non-linear regression models			
Exponential regression models	Application to numerous dynamics processes such as microbial growth and inactivation	Bayesian D-optimal design	Mukhopadhyay, Haines, 1995; Dette, Neugebauer, 1997
		D- and c-optimal designs	Han, Chaloner, 2003
Discrete and continuous logistic models	Microbial growth, risk assessments, infection processes	Bayesian design	Chaloner, Larntz, 1989
		D-optimal design	Sebastiani, Settimi, 1997
Monod model and closely related models			
Monod model	Microbial growth	D-, E-, c-, A- optimal designs	Munack, 1991; Versyck, 1998; Smets et al., 2002; Dette et al., 2003
ASM Model No. 1	Microbial growth, biodegradation kinetics	D-optimal design	Hidalgo, Ayesa, 2001
Monod type model	Activated sludge processes, respiratory measurements	A, D, E criteria	Vanrolleghem et al. 1995
Monod type model with two additive Michaelis-Menten functions	Nitrification process in the activated sludge batch experiments	D-optimal design	Ossenbruggen et al., 1996
Monod type model	Anaerobic degradation of the acetic acid in the batch and fed-batch experiments	D-optimal design	Merkel et al., 1996
Haldane model	Substrate inhibited microbial growth	Modified E-optimal design	Versyck et al., 1998
Models of predictive microbiology			
Bigelow model (Arrheniuse-type model)	Inactivation of microorganisms with temperature, determination of D,z values	D-optimal design	Cunha et al., 1997; Cunha, Oliveira, 2000
		Modified E-optimal design	Versyck et al., 1999
Baranyi model	Microbial growth model, application for the shelf-life prediction of food	D-optimal design	Grijspeerdta, Vanrolleghem, 1999
Ratkowsky growth model incorporated with Square Root Model	Inactivation of microbial activity by temperature, growth in suboptimal temperatures	Modified E-optimal design	Bernaerts et al., 2000; 2002
Weibull probability distribution function	Microbial degradation and death kinetics, shelf-life failure, drying processes	D-optimal design	Cunha et al., 1998
Related biochemical models			
Michaelis-Menten model	Fermentative reaction kinetics, basis for most structured model of microbial growth	D-, E-optimal design,	Duggleby, 1979; Dunn, 1988; Dette, Wong 1999
		Bayesian design	Murphy et al., 2003
Modified Michaelis-Menten model with enzyme deactiation	Batch enzymatic reactions where the activity of the enzyme decays with time	D- optimal design	Malcata, 1992
Hill equation	Enzymatic reactions, biosensors, microbial growth	D-optimal design	Bezeau, Endrenyi, 1986

Table 2. Some examples of application the optimal experimental design for microbiological models.