

**Supplementary Table S2.** Comparison of xylose reductase of *Debaryomyces nepalensis* (Dn|akr2), *Scheffersomyces stipitis* (Ss|akr2), the putative XR of *C. sorokiniana* (Cs|9620) and the putative XR of *A. protothecoides* (Ap|1177-Nter and Ap|1177-Cter). Amino acid defined for the catalytic tetrad, the NADPH and xylose bindings are presented (see **Fig. 5b** and main text for details).

Function	One letter code	Three letter code	DnAKR2	SSAKR2	CtXR	Cs9620	Ap1177-Nter	Ap1177-Cter
Catalytic tetrad	D42	Asp	D	D	D	D	D	D
	Y47	Tyr	Y	Y	Y	Y	Y	Y
	K76	Lys	K	K	K	K	K	K
	H109	His	H	H	H	H	H	H
NADPH specificity	S164	S	S	S	S	S	S	A
	N165	Asn	N	N	N	N	N	N
	Q186	Gln	Q	Q	Q	Q	Q	Q
	S213	S	S	S	S	A	S	S
	F215	Phe	F	F	F	L	L	L
	Q218	Gln	Q	Q	Q	P	P	P
	S219	Ser	S	S	S	D	D	D
	F235	F	F	F	F	M	L	L
	A252	Ala	A	A	A	G	G	A
	K269	Lys	K	K	K	K	K	K
	N271	Asn	N	N	N	T	T	T
	R275	Arg	R	R	R	R	R	R
	Q278	Gln	Q	E	Q	G	G	Q
	N279	Asn	N	N	N	N	N	N
Xylose binding	W19	Trp	W	W	W	W	W	W
	D46	Asp	D	D	D	V	V	V
	W78	Trp	W	W	W	W	W	W
	H109	His	H	H	H	H	H	H
	F110	Phe	F	F	F	W	W	W
	F127	Phe	F	F	F	/	/	/
	F220	Phe	F	F	F	S	S	S
	L224	Leu	L	L	M	F	F	L
	N305	Asn	N	N	N	V	V	V
	W310	Trp	W	W	W	W	W	W

Xylose assimilation in heterotrophic *Auxenochlorella protothecoides*: Unlocking the potential of microalgae for xylitol bioproduction. J Applied Phycol. Perez Saura P, Cardol P, Remacle C. c.remacle@uliege.be