

P-20. Hypermethylation of cytosine in the upstream region of estrogen receptor gene expressed in reproductive organs in herbivorous Syrian hamster (Abstracts of the International Symposium on Recent Advances in Animal Science (IS-RAAS), Joint meeting of 2<sup>nd</sup> IS-AS and 3<sup>rd</sup> IS-IFS)

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H+TRS<sub>F</sub> and H + TRS<sub>Mr</sub> than for TRS<sub>F</sub> or TRS<sub>Mr</sub>. In conclusion, there are positive associative effects on *in vitro* gas production occurred more consistently when untreated and biological treated rice straw was incubated in mixtures with hay.

### **P-19. Isolation of sulfur oxidizing microbes removing hydrogen sulfide**

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The most numerous complaints against animal operations are the offensive odor. Among odorous gasses emitted from livestock manure, composting and waste treatment processes, hydrogen sulfide (H<sub>2</sub>S) is one of most toxic and offensively odorous gasses. We isolated sulfur oxidizing bacteria from the compost, animal wastewater lagoon, sewage sediment of sulfide-rich hot spring and sediment in an acidified lake using Jin's Medium (Jin et al 1999). Sulfur oxidization abilities of isolates were determined by sulfate production after cultivation of the isolates. All of sulfur oxidizer among the isolates were obligately aerobic, gram negative and rod shape. HS159 strain showed highest ability of sulfur oxidization, and was identified as *Thiomonas* sp. HS159 continuously removed more than 95% of H<sub>2</sub>S during the experiment period (9days and 12h) when 10 ppm H<sub>2</sub>S in the air were bubbled continuously into the culture medium. HS159 is one of candidates useful for H<sub>2</sub>S removal in bioreactors.

### **P-20. Hypermethylation of cytosine in the upstream region of estrogen receptor $\alpha$ gene expressed in reproductive organs in herbivorous Syrian hamster**

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A Syrian hamster has a forestomach with a flora containing multiple cellulolytic bacteria, *Bacillus* and *Bifidobacterium*. Shinohara et al. established a strain of Syrian hamster (GNa) that could be reproduced and raised with only an alfalfa diet and water by phenotypic long term selection for a larger number of pups per mother as an indicator using a basic strain of GNr that was maintained by random mating. So, GNa would have a resistance to an endocrine disruptor, estrogen like chemical material, coumestrol that was contained in the alfalfa diet. To examine that, these two strains were carried out with a subcutaneous injection of the diethylstilbestrol (DES) in the range of 0 – 100  $\mu$ g. The reproductive organs in GNa were normal status, whereas the uterus, ovary and tubal of female in GNr were caused to swell. And mRNA production level of estrogen receptor  $\alpha$  (ER $\alpha$ ) gene of the reproductive organs in GNa was lower than that in GNr. And then, the methylation level of cytosine in the upstream region of ER $\alpha$  gene in GNa was higher than that in GNr. As a result, low sensitivity to estrogen like chemical material in alfalfa might have been shown in GNa. This would indicate that the pattern change and level of methylation might be influenced directly or indirectly by selection.